

# HINTS ON CATTLE



WITH SPECIAL REFERENCE TO  
**MILK PRODUCTION**  
AND SOME SIMPLE METHODS OF  
MILK TESTING FOR THE FARMER

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*Boots*

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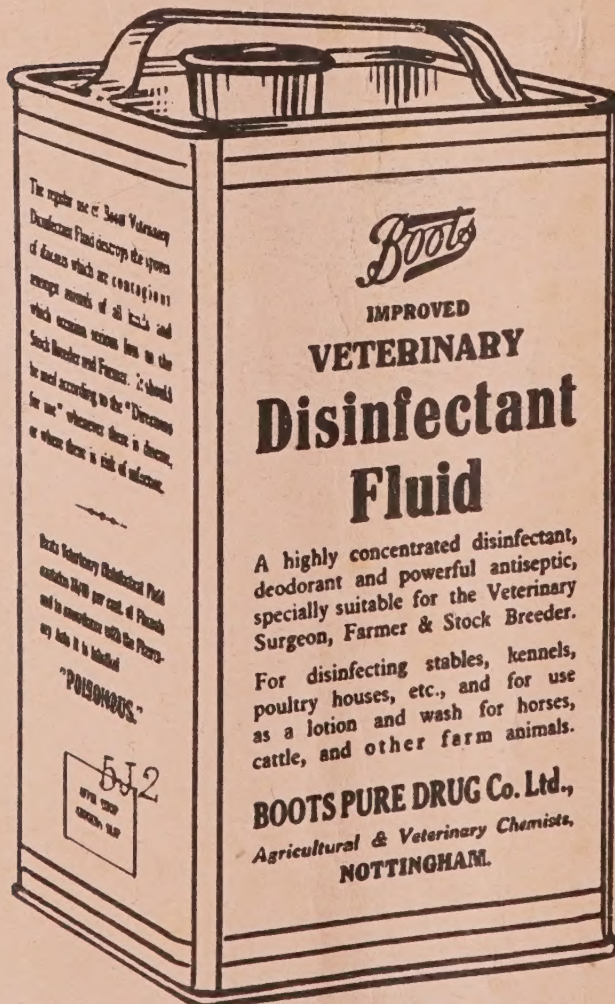
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# CONTENTS

|                                       | page |
|---------------------------------------|------|
| Introduction .. .. .                  | 5    |
| Notes on Diseases due to Malnutrition | 7    |
| Milk .. .. .                          | 9    |
| Milk, Abnormalities in .. ..          | 13   |
| Calving .. .. .                       | 15   |
| General Ailments .. .. .              | 19   |
| Doses of Medicines in common use ..   | 44   |
| Veterinary Instruments and Appliances | 45   |
| Complete Index .. .. .                | 46   |



# **Iodized Mineral Salts**

## **FOR CATTLE, SHEEP AND PIGS.**

**AN ECONOMIC AND EFFECTIVE FORM  
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MINERAL SUPPLEMENTS TO THE  
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# Introduction

**I**N this booklet there is no attempt at diagnosis, which requires the observation of a skilled, experienced and qualified practitioner, and no attempt is made to induce the live stock owner to dispense with the services of a Veterinary Surgeon—on the contrary, emphasis is laid on the necessity of seeking the advice of a veterinarian. It must be recognised, however, that there are many mild ailments which can be attended to by the farmer or experienced man, and also that many farms are so situated that even when it has been decided to call in a Veterinary Surgeon, some considerable time must elapse before his arrival.

Humanity demands that some ease must be afforded to the suffering animal, and self-interest dictates that some attempt shall be made to prevent what is probably only a simple ailment developing into a serious condition. The early and proper treatment of what is apparently a simple cold will often prevent pleurisy or pneumonia. Hence, frequent mention is made of the general lines upon which treatment is usually given, even where we advise calling in a Veterinary Surgeon.

The general rules to be observed when an animal first shows signs of illness are :

- (1) Separate the animal from the rest of the herd, so as to prevent anything of an infectious or contagious nature infecting others.
- (2) See that the animal is housed in a dry, sheltered, warm building, and made comfortable with plenty of warm bedding. As a general rule during winter, the animal should be kept indoors. In the summer, however, in the absence of feverish conditions, it is usually wise to let the animal out during the middle of the day, if necessary providing it with a warm wrap or cover.

The diet should be of a light, nourishing nature, containing a good proportion of gruels, mashies and bran, with a little grass and cut hay ; a little Boots Iodized Mineral Salts being added to any dry food that is given. In stomach and digestive disturbances, it is usually well to start with a dose of aperient medicine. Boots Cleansing and Evacuant Drench, given in gruel, with or without a pound of treacle, is very suitable. In feverish conditions, however, whilst it is necessary that the bowels should be open, the laxative employed should be of a mild nature to avoid undue purging. In such cases half doses of the drench will be sufficient. Where there is a high temperature and other signs of feverishness, early treatment will include the giving of Boots Fever Drink, and this should be repeated night and morning or three times a day if necessary until the fever subsides, or until such time as a Veterinary Surgeon can take over the case.

The attendant should make it his duty to visit sick animals after he has attended to the rest of the herd, so that there is no danger of his carrying infection. As an extra precaution, he should thoroughly disinfect his hands, boots, etc., before visiting other animals.

The use of a reliable disinfectant should be included in the measures taken on the first outbreak of a complaint, whether it affects several members of a herd or only one animal.

Not only is prevention better than cure, but in a great many cases prevention is possible, whilst a cure is impossible.

Many of the diseases which affect cattle and occasion considerable loss to the farmer are spread by disease germs, which in some cases are passed from one animal to another, or contaminate the buildings, stables and cowsheds, and can be picked up by passing animals. Moreover many disease germs are carried about in a manner which is still mysterious and no one can say exactly how they are transmitted from one animal to another. Hence it follows that the ordinary safe rule is always to have in use a reliable disinfectant as a precaution against infection, not only from known quarters, but also from the unknown. In fact, the time to disinfect is ALWAYS, particularly when the farm is free from disease, in order to keep it free. The disinfectant should be one that has been tested and approved by the Ministry of Agriculture as a reliable germicide and should be used at the approved strength.



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An effective treatment for Husk or Hoose and Bronchial, Stomach and Intestinal Worms. During the fall of the year, animals are most liable to be affected by Husk or Parasitic Bronchitis caused by an infection of Worms in the air passages. The best preventive measure is to dose the whole of the herd with Boots Husk and Worm Mixture, as early in the season as possible.

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# Notes on Diseases due to Malnutrition

A great many of the ailments which affect cattle may be classified under the heading Malnutrition, under which can be included Rickets or Soft Bone, Non-Thrivers, many of the predisposing conditions of Tuberculosis, and some of the conditions which lead to sterility. The farmer has of late years been concerned with the breeding and rearing of animals for the largest milk production or those that can be ready for market in the earliest possible time, with the result that the tremendous drain placed upon the animal frequently shows itself in lack of ability to absorb the necessary nourishment.

Much valuable work has been recently carried out in the scientific rationing of foods for farm animals. Although the experimental work in this direction is avowedly incomplete, enough has been done to lay down some guiding principles which can be observed by every up-to-date farmer. Whilst insisting upon a proper balance of ordinary rations, the farmer is advised to notice the particular factors which may lead to malnutrition, and to give to these particular attention. In addition to good well-balanced food, other essential factors are exercise, sunlight, an adequate supply of the necessary vitamins, and the equally important mineral salts. Sunlight and exercise are necessary to the proper assimilation of food, and where animals are getting insufficient sunlight, it is probable that their food will show a deficiency in the vitamin content, unless particular attention has been given to this matter in apportioning the rations. The vitamin content can frequently be enriched by the inclusion in the daily diet of small quantities of Cod Liver Oil.

The principal feature, however, which has been attracting attention during the last few years, is the matter of mineral supplies. When intensive productive methods make an extra demand upon the reserve supplies of an animal, the drain is particularly upon its mineral reserves. Thus the Departmental Committee on "Rationing of Dairy Cows" in their 1925 report (*page 54*), published by the Ministry of Agriculture state :—

**"It is believed that during the greater part of the lactation period, a heavy milking Cow suffers a loss of certain mineral elements from her body and that on account of this loss she is liable to get into a state of malnutrition, and that as a result of the malnutrition her health, breeding capacity and milk yield in subsequent lactations are affected."**

It is now recognised that the normal food of animals is deficient in many important mineral elements. For the production of Bone, the following mineral elements are required : Calcium, Magnesium, Phosphorus and Iodine ; and in a similar manner the growth of hair and wool require Lime, Phosphates, a little Iron, Sulphur and Iodine. It is impossible for any animal to thrive properly where there is a deficient mineral supply.

Theoretically, the adjustment of the mineral supplement to a ration might best be carried out by an estimation of the rations to show exactly what is required in the way of mineral matter, and its addition in the precise quantities necessary.

Practically, the desired results are obtained by using a well-balanced mineralised supplement containing all the necessary Salts in the proportions in which they are most likely to be required, and supplying small quantities of this in the regular daily food. There is no agreement upon the exact quantities which are necessary, and no one can say that any two individual animals in the same herd or flock require exactly the same amount of the various minerals.

Fortunately, the digestive organs are capable of selecting what is required, and it is only necessary to see that the essentials are present in reasonable quantities, avoiding either a shortage or a very large excess. At the same time it must be remembered that the requirements of the animal during pregnancy and whilst nursing are greater than at other periods.

Nothing is of greater importance to the stockbreeder than the stamina and fertility of his animals. Iodine has been proved of inestimable value in promoting healthy bodily functions, and when fed to animals intended for breeding it has in many cases shown a marked tendency to overcome a disposition towards barrenness. Boots Iodized Mineral Salts are of great value in promoting a condition of fertility, and of sustaining the animal during the period of gestation. The offspring of animals receiving a supply of the Salts during pregnancy start life with a strong constitution, showing a marked resistance to disease.

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# MILK

Designed by Nature as a complete food for the young, Milk contains in an easily assimilated form all the elements of nourishment. The main bulk of milk, exclusive of the water, is made up of the following four constituents : Fat, suspended in the form of small globules, Milk Sugar, Proteins and Mineral Matter. In addition there are other constituents, small in amount but of great importance in nutrition ; among these may be classed the accessory food factors, or Vitamins, and unorganised ferments or Enzymes.

## THE FAT OF MILK

Fat is a comprehensive term, and includes glycerides of the fatty acids, sterols (in milk chiefly cholesterol), a yellowish colouring matter and phosphorus-containing substances, chiefly lecithin. It contains Vitamins A, the functions of which are chiefly growth-producing, D, which aids the assimilation of calcium and is therefore anti-rachitic, and probably E, which is necessary to reproduction. The Glycerides which constitute approximately 99 per cent. of the fat are unique, as they are a combination of glycerin with the lower fatty acids, butyric and caproic, which practically speaking occur in no other fat. Small amounts of capric and caprylic acids also occur. The fat occurs in the form of small globules (varying in size) from 0.1 to 22 micro-millimetres. The very small of very large globules are rare, and practically the range lies between 1 and 8 micro-millimetres, with an average of about 3. Jersey cows yield milk with larger average globules than Shorthorns, Ayrshires and Holsteins.

The fat globules are not surrounded by a real membrane as was formerly supposed, but a layer of serum is condensed and held firmly by surface energy, and the fat globules therefore do not touch. Hence although the fat is liquid in the udder and remains liquid for some considerable time after milking, it runs as cream and not as an oily layer.

## MILK SUGAR

The sugar of milk occurs only in milk and has properties that distinguish it from all other sugars ; its taste is barely sweet, and owing to comparatively small solubility it seems gritty when the powder is tasted. It is a combination of glucose, dextrose, and galactose, and crystallises with one molecule of water of crystallisation. It is moderately soluble in water and when dissolved undergoes a change which not only alters its optical rotation, but also its solubility. Milk sugar has a tendency to form a supersaturated solution and does not crystallise very easily.

## PROTEINS

The chief compounds containing nitrogen are the proteins. They are of a complex constitution, being formed by the condensation of many molecules of amino-acids, and it is impossible in the space available to give even an abstract of our present knowledge of their constitution. Proteins also contain Carbon, Hydrogen, Sulphur, Oxygen and in some cases Phosphorus.

The principal protein of milk is Casein which is a phosphorus-containing protein. It exists in milk as the Sodium-Calcium Salt in loose combination with Calcium Phosphate. Casein has acidic properties and acts as an insoluble acid giving soluble salts, which accounts for milk curdling when acid. It is acted upon by rennet, an enzyme which has the property of splitting casein into

a soluble whey protein, and a meta-protein, the calcium salt of which is insoluble, and which carries down the calcium phosphate and forms curd. The sodium which was combined with the casein passes into the whey. Consequently the whey is always less acid than the milk from which it was derived.

Casein in the pure state is white and odourless and is practically insoluble in water, but dissolves easily in alkalies. It is a polybasic acid and exists in milk as an alkaline salt, which is shown by the fact that milk has sufficient alkalinity to dissolve more casein.

A second protein of some importance is albumin. Combined with alkalies, this exists also in milk. In the pure state it is soluble in water, but coagulates on heating to 154° to 158°F. It is not thrown out on heating milk, as it is in combination.

The composition of milk on the average is—

|               | <i>per cent.</i> |                    | <i>per cent.</i> |
|---------------|------------------|--------------------|------------------|
| Water .. ..   | 87.34            | Albumin .. ..      | 0.40             |
| Fat .. ..     | 3.75             | Ash .. ..          | 0.75             |
| Milk Sugar .. | 4.70             | Other Constituents | 0.06             |
| Casein .. ..  | 3.00             |                    |                  |

It is usual to group all the constituents other than Water and Fat under the name of “Solids not Fat” and under the powers conferred by the Sale of Food and Drugs Act, 1899, the President of the Board of Agriculture has laid down that a presumption shall be raised, till the contrary be proved, that milk is not genuine if the fat be less than 3.0 per cent. and the “solids not fat” less than 8.5 per cent. However, as Dr. Paul Vieth remarked, “The cows have never been asked for, nor have they given, their assent to the standard and will at times produce milk below the standard.”

The following table will show the probable number of samples per 100,000 which may be expected on the average to fall below the standard.

| <i>Percentage of Fat</i> | <i>Number of samples</i> | <i>Percentage of Solids not Fat</i> | <i>Number of samples</i> |
|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2.9 to 3.0               | 370                      | 8.4 to 8.5                          | 1892                     |
| 2.8 to 2.9               | 209                      | 8.3 to 8.4                          | 242                      |
| 2.7 to 2.8               | 87                       | 8.2 to 8.3                          | 27                       |
| 2.6 to 2.7               | 37                       | 8.1 to 8.2                          | 22                       |
| 2.5 to 2.6               | 16                       | 8.0 to 8.1                          | 8                        |
| Below 2.5                | 13                       | Below 8.0                           | 2                        |

There are certain periods of the year, especially May and June, when the fat in milk is poor, and the average of many years’ experience shows that it is probable that *in the morning milk only* the number of samples below standard per 100,000 may be expected to rise to :—

| <i>Fat</i> | <i>May</i> | <i>June</i> |
|------------|------------|-------------|
| 2.9 to 3.0 | 3,300      | 3,400       |
| 2.8 to 2.9 | 1,800      | 1,500       |
| 2.7 to 2.8 | 800        | 600         |
| Below 2.7  | 400        | 300         |

It is the object of every milk producer to comply with the standards laid down. There is practically no difficulty in this so far as the “solids not fat” is concerned, and for the greater part of the year the fat presents no difficulty, but during May and June especially, and often during April and July, there is a very distinct tendency for the fat to be low. Experiment has shown that when cows are turned out to grass in the spring, the fresh young grass has a distinct laxative effect, and if the cows scour badly a very noticeable drop in the fat occurs. The remedy is obvious—to feed less young grass and more binding material. In preventing scour there is the additional advantage that the yield lowered by the disease, goes up when scouring is stopped. There is some evidence that foods rich in vitamins tend to reduce the fat content of the milk, though ensuring that the milk is rich in vitamins. It is perhaps due partly to this reason that the fats are low in May and June, as it is then that

the grass is richest in vitamin. It has been recorded that large doses of cod liver oil—a rich vitamin food—reduce the fat content, though moderate doses have not this effect. During the period of low fat no cod liver oil or other vitamin concentrate should be fed.

Another cause for low fat may be that the cows are not getting enough nourishment. The diet of a cow serves two purposes—one to supply the needs of the life processes and the other to supply the elements necessary for milk production. If there is insufficient nourishment of any kind, milk production will suffer and, as fat production causes the greatest strain on the anabolic (building up) processes, the effect will be noted in the fat. Therefore concentrated food such as cake, and the necessary mineral salts including the essential small amounts of iodine, will often raise the fat in milk sufficiently to make the difference between danger and safety.

Yet another cause of low fats is the practice of milking three times a day; total milk production is stimulated at the expense of fat production, and where this course is necessary, there must always be anxiety as to whether the milk will be up to standard or not.

Milk, designed by Nature as the sole source of nourishment for the infant animal, is an ideal food. Cow's milk is of course not quite the ideal food for babies, as calves grow so much more rapidly, and nature therefore supplies a great and more concentrated proportion of flesh and bone forming constituents which are too heavy for the infant's digestion. But by suitable modification, chiefly by removing the excess of curd and phosphate of lime, it becomes a suitable substitute for mother's milk. Adults digest it well as a rule, and milk has been proved to provide the necessary nourishment in a very cheap form. Milk is also an ideal nutriment for micro-organisms, and the familiar souring is but an example of bacterial action. Numerous lactic-acid-producing organisms have been described, all of which turn milk sour, and the greater proportion of these have their origin in dirt, especially cow dung. To produce good healthy milk, cleanliness is essential. Before milking, the cow should be groomed, the dirt adhering to the flanks removed, and the udder carefully cleaned by washing in warm water. The milker's hands should also be washed frequently, and his clothing should be clean. The practice of cleanliness is not difficult, nor does it cause much expense.

The production of acidity in milk follows known laws and the following table will show the rate at which acidity may be expected to be developed in milk at different temperatures :—

| <i>Time in Hours.</i> | TEMPERATURE.              |      |      |      |      |
|-----------------------|---------------------------|------|------|------|------|
|                       | 50°                       | 60°  | 70°  | 80°  | 90°  |
|                       | <i>Acidity developed.</i> |      |      |      |      |
| 10                    | 0.0                       | 0.0  | 0.1  | 0.2  | 2.5  |
| 15                    | 0.0                       | 0.1  | 0.2  | 2.5  | 21.0 |
| 20                    | 0.1                       | 0.2  | 1.1  | 10.2 | 65.0 |
| 25                    | 0.1                       | 0.3  | 4.0  | 41.0 | 76.0 |
| 30                    | 0.2                       | 1.1  | 10.2 | 65.0 | 81.0 |
| 35                    | 0.3                       | 3.0  | 27.0 | 73.0 | 85.0 |
| 40                    | 0.6                       | 6.0  | 50.0 | 78.0 | 88.5 |
| 45                    | 1.1                       | 10.2 | 65.0 | 81.0 | 91.5 |
| 50                    | 2.0                       | 20.0 | 71.0 | 83.5 | 94.0 |
| 55                    | 3.1                       | 35.0 | 75.0 | 86.0 | 95.0 |
| 60                    | 5.0                       | 50.0 | 78.0 | 88.5 | 96.0 |
| 70                    | 12.5                      | 68.0 | 83.0 | 93.0 | 97.0 |
| 80                    | 28.0                      | 73.0 | 85.5 | 95.0 | 98.0 |
| 90                    | 50.0                      | 78.0 | 88.5 | 97.0 | 98.5 |
| 100                   | 65.0                      | 80.0 | 91.5 | 98.0 | 99.0 |

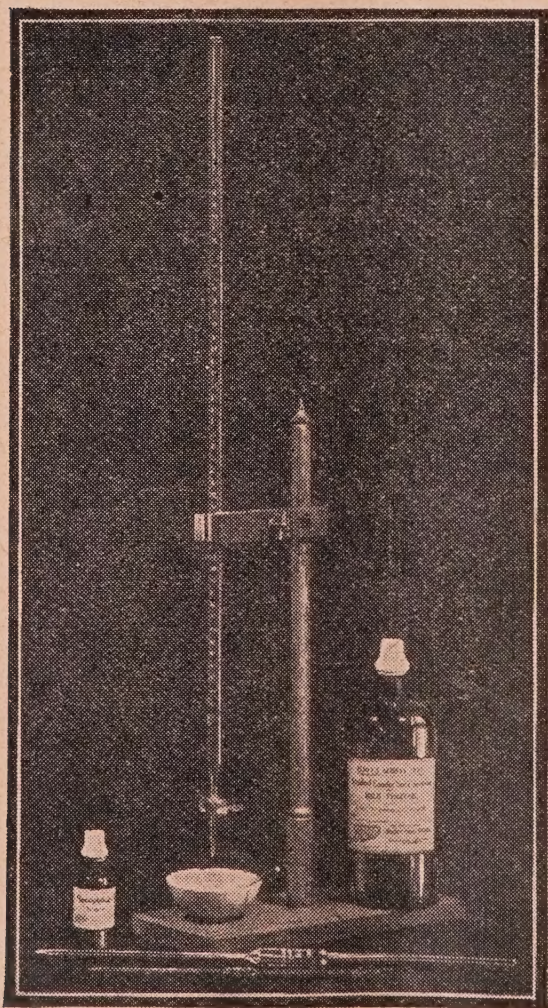
*Note.*—The acidity is given in degrees each of which equals 0.009 per cent. lactic acid; the acidity developed is in addition to the natural acidity of milk which averages about 20 degrees or 0.18 per cent. of lactic acid.

This shows the great importance of keeping milk cool. It may be taken that when milk develops an acidity of 13 degrees it will just curdle on boiling, and this may be regarded as a criterion of sourness. Thus at 50°F, it will keep 3 days, at 60°F about 2 days, at 70° about 32 hours and at 80° about 21 hours—figures which emphasise the importance of keeping milk cool.

These figures are for an average milk. Milk produced under conditions of the greatest cleanliness will keep longer, as cleanliness means absence of micro-organisms which produce acidity. It must be remembered too that there are many bacteria which do not produce acidity and which can be extremely harmful. Epidemics of typhoid have been caused through milk, and typhus is not a lactic-acid-producing organism. Cleanliness in the ordinary sense means soap and water; in the bacteriological sense it means antiseptics or disinfectants. Boots Improved Veterinary Disinfectant Fluid is designed for the disinfection of sheds, and may be added in small amounts to the washing water.

The acidity of milk may be tested by Lloyd's Acidity test; the necessary apparatus is a graduated 20 c.c. burette divided into tenths, to hold a standard solution of sodium hydrate, each cubic centimetre of which neutralises exactly 0.01 gramme of lactic acid; a 10 c.c. pipette to measure out the quantity of milk, etc., for each test; and a solution of phenolphthalein, called the indicator in a small drop bottle, to indicate when the acid in the milk or liquid tested is completely neutralised by the standard solution of caustic soda.

**Method of Procedure.**—10 c.c. of milk are accurately measured into the bottle or basin, to this is added three or four drops of the phenolphthalein indicator solution. (This solution should be kept slightly pink by adding to it



occasionally one drop of the standard soda solution). The acid in the milk will completely destroy the colour of the indicator, but upon cautiously adding the standard soda solution from the graduated burette, it will be found that the colour is suddenly produced by the addition of one or two drops of the sodium hydrate. The moment this colour is produced the acid in the milk has been neutralised, and the quantity of sodium hydrate which has been required to produce the colour represents the amount of lactic acid present. Each cubic centimetre used being equal to 0.1 per cent. of lactic acid, therefore each division is equal to 0.01 per cent., hence, suppose the milk to take 22 divisions, the percentage of lactic acid present would be 0.22

**Precautions.**—The standard solution of sodium hydrate undergoes change if exposed to the air. The burette should, therefore, be well corked when not in use; the stoppers of the bottles in which the solution is kept should be well greased, and only a small bottle of the standard solution taken from the stock, should be used for filling up the burette.

## ABNORMALITIES IN MILK.

Occasionally there is an abnormality in the milk, and the following are some of the conditions that may arise :—

**Bitter Milk** is usually due to something in the food supply, probably some bitter herb or excess of turnips. This calls for a change of diet to remove the cause, and a dose of Boots Cleansing and Evacuant Drench to clear the system. This should be followed by a few doses of the Tonic and Cordial Drench.

**Blood-stained Milk** is usually due to some weakness in the blood vessels, and is treated by giving daily doses of sulphate of iron for a few days.

**Blue-tinted Milk** is due to the presence of a bacillus, the cause of this being either decomposed food or foul air. Treatment consists in an improvement in the conditions—diet or housing—and the administration of a saline purge (Boots Cleansing and Evacuant Drench), to which could be added a pound of treacle.

**Dropping of Milk** is generally due to weakness of the muscles, and is sometimes treated by sealing or banding the teat, though such mechanical methods should be adopted with caution, on account of the possibility of giving rise to more serious udder trouble. The best treatment consists in milking more frequently or, where possible, allowing the cow to suckle a calf and so get rid of the extra milk.

**Falling Off of Milk Supply** may be due to either local or general conditions, and the teat should be examined for possible obstruction. Where no local obstruction exists, and the suppression of Milk is due to general conditions, a daily dose of Boots Tonic and Cordial Drench, continued for a few days, will usually effect a considerable improvement.

**Ropy or Stringy Milk** may be due to a catarrhal condition brought on by faulty feeding, or to the cow having eaten some particular plants, such as butterwort; but it is generally of bacterial origin. The condition calls for an initial purge, Boots Cleansing and Evacuant Drench being the most suitable, followed by a few doses of the Tonic and Cordial Drench. It is advisable in cases of ropy milk to disinfect the cowsheds, dairies and all utensils, as well as the hands and clothes of the milkers. Boots Improved Veterinary Disinfectant Fluid (two teaspoonfuls to one quart) is suitable for this purpose.

**Strong-smelling Milk** is generally due to digestive disturbances, but may also be caused by cattle eating an excess of turnips, or strong-smelling plants such as garlic. Treatment consists in giving a full dose of Boots Cleansing and Evacuant Drench, followed by half-doses on alternate nights until three or four doses have been given. Boots Tonic and Cordial Drench can be given at the same time if it is desired to tone up the digestive organs.

**Watery Milk** is usually due to malnutrition, and is frequently found in tubercular cows. In such cases, the animal should be given rich nourishing food, together with Boots Iodized Mineral Salts.

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for the treatment of Fluke or Liver Rot in Sheep.

*Prices on application.*



*Boots*

## CLEANSING AND EVACUANT DRENCH

A safe and reliable aperient, and an ideal laxative in Feverish and Inflammatory complaints, Chills, Garget, etc. Particularly useful as a cleansing drink before and after calving.

Price **1/-** each - **11/6** per dozen

*Obtainable from all branches of Boots The Chemists*

*Boots*

## ACRIFLAVINE PESSARIES

**FOR COWS**

Medicated cones for insertion into the passage, used as a precaution against Epizootic Abortion or Slipping Calf. They are medicated with Acriflavine (Boots) 1 in 1000, one of the most powerful germicides known.

Price - **6/-** per dozen

*Boots*

## SOLUTION TABLETS of Potassium Permanganate

Grains 8.75

One Tablet dissolved in a pint of warm (boiled) water produces a 1 in 1000 solution, making a mild antiseptic lotion of the strength recommended by the Ministry of Agriculture, for syringing the genital passages of an animal which has aborted.

Price per bottle of 100 tablets

**2/3**

# CALVING

## CALVING (PARTURITION).

Every Farmer and Stock-owner has made himself familiar with the more common signs which are shown by a cow when she is about to calve, namely, the preparation of the udder, and swelling of the lips of the vulva from which a slimy discharge can be seen which soils the tail and the hind parts. There is also a relaxation or sinking of the ligaments in the hollow on each side of the tail, giving rise to the condition known as "dropping of the bones"; this is a sure sign and is recognised by all breeders as one of approaching parturition. After the cow has started to calve, a reasonable time should be given her, say, a few hours, before any interference is made. The attendant should then thoroughly wash in disinfectant his hands and arms and lubricate them with Boots Carbolic Green Oil. Having secured a pair of calving lines and disinfected them well by dipping them in a bucket of hot water to which Boots Improved Veterinary Disinfectant Fluid has been added, he should then introduce his hand and arm through the vulva and make a thorough examination of the parts of the calf which are presented. No work requires more careful judgment and cautious perseverance than to effect delivery with safety to the cow and calf. The attendant should place all his confidence in the intelligent use of his hands and arms. He should first identify the limbs, taking into consideration the size and shape of the hocks as compared with the knees (remembering that the knees and hocks bend in opposite directions) and should be certain that the head and feet belong to the same calf. Having secured the limbs, make sure that there is plenty of floor space behind the animal for helpers to pull on the ropes. Be careful to pull on the ropes only when the cow is straining. The direction of the pull should at first be upwards, then straight backwards, and afterwards downwards as the calf is being expelled. If when making his first examination the attendant is not satisfied, or is in any way uncertain of the relative position of the limbs or other parts of the calf presented in the passage, he should at once send for a Veterinary Surgeon. The danger of further delay cannot be over-estimated. Experience teaches many useful and much needed lessons but none is more important than the danger of delay in securing skilled assistance in these cases. If the cow is allowed to continue straining for an indefinite time the position becomes much worse and the difficulties of the operation are increased, and the lives of both offspring and cow may be endangered.

After the calf has been delivered the cow should be given a Cleansing and Evacuant Drench, to be followed by a Tonic and Cordial Drench. An Acriflavine Pessary should be inserted into the uterus.

The cow should be washed out daily with a mild antiseptic solution (Potassium Permanganate, 1 in 1000, or one of the other antiseptics mentioned under Epizootic Abortion, *page 19*).

*Boots*

# FEVER DRINK

**R**ECOMMENDED in cases of Colds, Chills, Influenza, Shivering Fits, Feverish Conditions and all kinds of Inflammation.

A dose given as a preventive may avoid serious developments when the animal is suspected of having caught a Chill.

Boots Fever Drink is a valuable general medicine in conjunction with the correct local treatment for use in cases of Garget or Mammitis, Inflamed Teats and other local inflammations.

PRICE: **1/3** Per Bottle

SPECIAL QUOTATIONS FOR LARGER QUANTITIES

*Obtainable from all branches of Boots The Chemists.*



# TONIC AND CORDIAL DRENCH

**A**N excellent Tonic for Cattle "off their feed," not thriving, or not properly chewing the cud. An ideal remedy for Indigestion, Hoven or Blown, Colds and Chills. Specially valuable as a stimulant after Calving, or in cases of exhaustion, and as a Restorative for Show Cattle after travelling.

**1/-** each, **10/-** Per Dozen.

*Sold at all branches of Boots The Chemists.*

## **Eversion of the Rectum.**

This may be brought about by excessive straining during or after calving. Treatment consists of the application of hot fomentations (to which a few drops of Boots Improved Veterinary Disinfectant Fluid have been added). The part should be made perfectly clean, and smeared with Boots Carbolised Green Oil. When replacing, the hand should be well disinfected and also smeared over with the Oil. Where there is difficulty in replacing, a Veterinary Surgeon should be called. The animal should be prevented from further straining by giving one or two doses of Boots Anodyne (Pain Relieving) Drink. A Cleansing and Evacuant Drench should be given each day, and the animal kept on a laxative diet.

## **Eversion of Uterus.**

This is a very serious condition, due to excessive straining, and usually occurs immediately after calving. A Veterinary Surgeon should be sent for without delay.

In the meantime, the part must be kept perfectly clean by well washing with a mild antiseptic solution (*see* under Epizootic Abortion, *page* 19), smeared all over with Boots Carbolised Green Oil, and wrapped in a clean sheet until a Veterinary Surgeon arrives.

## **Flooding After Calving.**

This may be caused by one of the many accidents which one is likely to encounter during a difficult calving. By using too much forced traction, the side of the passage may be lacerated. The feet, if not carefully guided out, may tear the membrane, causing excessive bleeding. If laceration is suspected, a Veterinary Surgeon should be consulted.

Immediate treatment consists in dashing cold water over the loins, the insertion of an Acriflavine Pessary, and the administration of Boots Anodyne (Pain Relieving) Drink. Subsequent treatment consists in washing out the womb twice daily with a mild antiseptic solution (*see* Epizootic Abortion, *page* 19), followed by the insertion of an Acriflavine Pessary, this treatment being continued for two or three days.

Boots Cleansing and Evacuant Drench should be given at night.

## **Retention of the After Birth in Cows.**

This is a very common occurrence in cattle, and may be caused through weakness, or any disease that lowers the vitality of the animal at this critical period. Chills, exposure, old age, or uncleanly methods used by the cowman may all cause retention of the after birth. If a cleansing is allowed to hang after the second day, the colour of the membrane changes from a slimy red to a dirty grey, and the odour of the discharge is very offensive. The animal will look dull and feverish, and may be off her feed. There will be loss of milk yield and grave danger of metritis and septic infection of the womb, which may end in death.

*Treatment.*—Syringe the womb two or three times a day with a mild antiseptic solution (*see* Epizootic Abortion, *page* 19), insert an Acriflavine Pessary into the uterus every night and morning. Give Boots Cleansing and Evacuant Drench, mixed with the Tonic and Cordial Drench, every night and morning. Spray the walls of the loose box or cow stable with Boots Improved Veterinary Disinfectant Fluid.

If a cow has not cleansed within twenty-four hours after calving, send for a Veterinary Surgeon before putrefaction sets in.

*Boots*

# ANODYNE (Pain Relieving) DRINK

**F**OR the relief of pain in Horses, Cattle, Sheep and other animals. Soothing and quieting for excited or frightened animals. May be used instead of Laudanum in all cases where an Anodyne is required.

The relief of severe pain is not only a duty which an owner owes to his animal, but is necessary to prevent it injuring itself, to produce a quiet condition that will permit of proper examination, and to save its strength to combat disease. Pain is not a disease, but only a symptom, and when the pain has been allayed and the animal is quiet, proper remedial treatment may be given.

**1/6**

PER BOTTLE

*Special Quotations for  
Larger Quantities.*

Sold by all Branches of  
BOOTS The CHEMISTS

# GRATTON'S Embrocation (WHITE OILS)

Cures Sprains, Bruises, Curbs, Over-Reaches, Sore Throat, Influenza, Rheumatism, etc., in Horses, Cattle and all domestic animals.

**2/- AND 3/3**  
PER BOTTLE.

Sold by all Branches of  
BOOTS The CHEMISTS

*Boots*

# VETERINARY ASTRINGENT LOTION SOLUTION TABLETS

Each tablet contains Sulphate of Copper, Sulphate of Zinc, Alum, 20 grains, and Thymol,  $\frac{1}{2}$  grain. Dissolved in water, they form a suitable lotion for the treatment of sores, ulcers, sitfasts, etc. Full directions on the label.

**2/-**

Per tube of 25 tablets

# GENERAL AILMENTS

## ABORTION (Slipping Calf).

Abortion, or Slipping Calf, may be due to faulty nutrition, fright or excitement, or may be of an infectious nature. For cases due to malnutrition, *see* "Sterility" *page* 37 and "Nutrition" *page* 7. Where Abortion is due to the failure of the fœtus to develop, it is important that not only this, but the whole of the placenta is brought away, and that proper precautions are taken to avoid inflammation. In such cases, it is generally advisable to procure the services of a Veterinary Surgeon.

In every case of Abortion in Cattle, no matter from what cause, the animal should immediately be isolated, the uterus syringed daily with an antiseptic solution (*see* under Epizootic Abortion, *below*), and an Acriflavine Pessary inserted into the uterus twice weekly until all discharge ceases. The animal should be given Boots Cleansing and Evacuant Drench daily for three days.

## Epizootic or Contagious Abortion.

Where Abortion is of an infectious nature, it should be remembered that the condition is one that is easily spread to other members of the herd, and causes considerable loss. Where contagious abortion occurs, the farmer is advised to obtain Leaflet No. 108 on "Epizootic Abortion in Cattle, or Slipping Calf," issued by the Ministry of Agriculture, 10, Whitehall Place, S.W.1. Epizootic Abortion is due to infection by a very small microbe, and may be caused by soiled food or water supply, or by cattle lying on soiled litter or dipping their tails into a gutter. Infected material may retain its power of infection for months, and may be carried some distance by dogs and foxes, or on hands and boots of attendants. Infection is generally by way of the mouth, but may come from the bull. The milk also may contain the bacillus. Symptoms do not immediately follow infection.

Slipping or Abortion may take place one month after infection, but more generally three or four months afterwards, and in some cases later. Often the only warning that an animal may abort is a discharge from the genital organs. This may be noticed two or three days (and perhaps only a few hours) before "slipping the calf."

The following precautions should be observed :—Everything that comes from a cow that has aborted should be burnt or otherwise destroyed, all implements used (spades, forks, barrows, etc.) thoroughly disinfected, and an affected or suspected animal should be kept away from other pregnant cows.

*The official leaflet referred to above recommends that :—*

"So long as there is any discharge from the genital organs of an animal which has aborted, the genital passages should be syringed out twice a day with a mild antiseptic solution (3 per cent. solution of carbolic acid, or corrosive sublimate 1—2000, or permanganate of potash 1—1000), and the flooring behind the animal should be disinfected at least once daily. When the heavy discharge has ceased, it is a good plan, in addition to douching the vagina, to insert a pessary of cocoa butter and corrosive sublimate, 1—2000, well up the passage twice weekly for two weeks."

The douche is easily made by using Solution Tablets Permanganate of Potash, each containing 8.75 grains. One dissolved in a pint of water makes the solution recommended.

**Vaginal Pessaries** are medicated cones for insertion into the passage, and can be obtained medicated with Corrosive Sublimate as recommended in the official Leaflet, or with Acriflavine (Boots), (*see page 14*), Chinosol, etc.

For disinfecting the cowshed and utensils Boots Improved Veterinary Disinfectant Fluid should be used.

**NOTE.**—Under the Epizootic Abortion Order of 1921, a cow or heifer which has aborted within two months may not be exposed in the market or sold privately without notifying the purchaser of the fact, or sent for service without notifying the owner of the bull, or turned out on common or unfenced land, or grazed on a highway.

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**ACTINOMYCOSIS** (*see Wooden Tongue, page 42*)

**ANGLEBERRIES** (*see Warts, page 41*)

## **ANTHRAX**

As this disease comes under the Regulations of the Ministry of Agriculture, we cannot do better than give the short description from the official pamphlet (No. 28) published to enable stock-owners to recognise the disease if it should occur.

“Animals affected.—Human beings and all animals are liable to Anthrax. The disease is seen chiefly in cattle, pigs, and sheep, but not uncommonly in horses.

*Symptoms.*—The disease shows itself suddenly. It is very fatal, usually within 48 hours. It does not often in the United Kingdom spread with rapidity from animal to animal, but it may affect a number of swine at the same time if they have been fed on Anthrax flesh or organs.

A beast which a short time before appeared to be well is found dead or in a dying condition. Frequently blood oozes from the nostrils and the anus. In cattle there are no typical symptoms, but in horses and pigs the region of the throat is often found to be swollen.

*Post-mortem.*—The carcass is swollen. Blood is found around the nostrils and anus. The muscles are often infiltrated with blood at certain points. The lungs and glands are congested. The spleen is very much enlarged. It is softer and darker than normal, and its substance usually resembles tar. In most parts of this country the enlargement of the spleen is of great diagnostic importance, but in those districts where Red Water exists, enlargement of the spleen may also be expected. In this case, however, the spleen substance has not the same fluid tarry appearance. The flesh is dangerous to animals and human beings. It is the height of folly on the part of a farmer to open an animal suspected to have died of Anthrax, as he may thereby cause further infection of his premises. In cases of sudden death he should await a skilled opinion before disposing of the carcass.”

In a district where Anthrax has occurred, it will obviously be necessary to take the strictest precautions to prevent the infection reaching other animals. This is best accomplished by a liberal use of Boots Improved Veterinary Disinfectant Fluid.

## **APOPLEXY**

Apoplexy is usually due to some trouble of the brain—a rupture of blood vessels or tumour—perhaps the outcome of some long-standing disease. It is a condition which is generally hopeless from the first, and in most cases the best plan is to destroy the animal. Treatment, where possible, would probably be of a surgical nature, and would consequently be a matter for the Veterinary Surgeon.

See Staggers, *page 37*.

**APHTHA** (*see Blain, below*)

**BARRENNESS** (*see Sterility, page 37*)

## **BLACK LEG (BLACK QUARTER, QUARTER ILL, or STRIKE)**

This is a bacterial disease, generally affecting cattle from six months to two years old. It occurs more frequently on low-lying, damp pastures, particularly where the land is put down to permanent pasture, and is due to the soil being infected with the disease germ. Where the disease occurs, it usually develops quickly, and the animal is frequently dead within two days of showing the first symptoms. At times, the animal will be found dead without any signs of disease having previously been noticed.

The general symptoms are sudden loss of appetite, staring coat and fever. Examination discloses signs of swelling of the muscular parts of the quarter, buttocks, shoulder or leg, with the formation of “gas” under the skin. Sometimes the animal shows distress from colic pains and Hoven, but any of the symptoms may be absent.

There are no known means of treating the disease, and the stock-owner is advised to devote his attention to protecting the rest of his herd. Carcasses of dead animals are best disposed of by burning, but where this is impossible, they should be buried whole and covered with lime, care being taken not to allow any blood to be spilt. As infection comes from the germ in the soil, pastures that are known to be infected should be avoided, especially for young cattle, and marshy land should, where possible, be drained.

Where the infection has appeared upon a farm, some protection can be afforded by inoculation of young cattle with a suitable vaccine, the farmer being advised to consult a veterinary surgeon on this matter. It is obvious that a reliable disinfectant should be in use as an additional precaution.

## **BLAIN, or BLANE (APHTHA or THRUSH)**

This is an affection of the tongue upon which small blisters or blebs occur, frequently accompanied by a swelling of the whole tongue. The animal generally shows signs of a feverish condition. The affected animal should be kept away from the rest of the herd.

Treatment consists in giving a suitable aperient (Boots Cleansing and Evacuant Drench) and, where fever exists, relieving the temperature by giving Boots Fever Drink; and local treatment, consisting of opening the blebs to liberate the fluid, and dressing them with Boots Carbolic Green Oil. Improvement in the general condition of the animal can often be brought about by the use of Boots Iodized Mineral Salts with the rations.

**BLAST** (*see Hoven, page 27*)

**BLOODY FLUX** (*see Dysentery, page 24*)

**BLOTCH** (*see Nettlerash, page 33*)

**BOWELS, Impaction of** (*see Constipation, page 23*)

## **BRONCHITIS**

Bronchitis is caused through inflammation of the lining of the bronchial tubes, and may be due to local irritation set up by the unskilful giving of a draught, or more frequently, by exposure to cold, or damp and draughty quarters. The symptoms are difficulty in breathing, wheezing, high temperature, and frequently the signs of an ordinary cold.

Treatment consists in keeping the animal in warm, sheltered quarters with warm clothing and regular doses of Boots Fever Drink, at the same time keeping the bowels active without purging, by giving a mild laxative as required (the Cleansing and Evacuant Drench being suitable). The chest and throat should be rubbed with a stimulating liniment (Gratton's White Oils Embrocation, for Cattle), and the diet should be of a warm, stimulating nature and should include hot gruels. For Bronchial Parasites, *see* Hoose, page 27.

**BRONCHIAL PNEUMONIA** (*see* **Pneumonia**, page 33)

**CAPPED KNEE** (*see* **Swellings**, under **Wounds**, page 42)

**CATARRH** (*see* **Cold**, page 23)

**CATTLE ITCH** (*see* **Itch**, page 30)

## **CATTLE PLAGUE**

As this comes under the regulations of the Ministry of Agriculture, and every case, or suspected case, must be notified to the police, it is sufficient to quote the paragraph from the official Leaflet (No. 390), which is published as a guide to enable farmers to recognise the disease if it should occur :—

“*Symptoms.*—The temperature rises in the early stages. The animal is off its feed, dull, and the coat is staring. Sometimes shivering is noticed. The breathing is quick ; a watery or mucous discharge flows from the eyes and nostrils ; in the latter case there may be a slight amount of blood in the discharge. In milch cows the secretion of milk is diminished or arrested. The membrane of the nostrils is reddened, and an eruption, like grains of bran, appears at the lower parts. This eruption is often followed by distinct ulceration, which may appear in the nostrils, inside the lower lip, and on the tongue. The bowels are at first constipated, but in the later stages diarrhoea often sets in. In this case the dung has a foul smell, and is often tinged with blood. The animal falls away rapidly, and the disease usually has a fatal termination in from six to ten days. It does not attack single animals in a herd, but spreads rapidly from one to another.”

Where Cattle Plague has occurred, it is obvious that the strictest precautions should be taken to prevent any spread of infection—the use of Boots Improved Veterinary Disinfectant Fluid is advised. (*See* page 2).

**CHAPPED TEATS** (*see* **Teats**, page 37)

**CHILL** (*see* **Cold**, page 23)

**CHINE FELON** (*see* **Rheumatism**, page 34)

## **CLYERS (CRUELS, LUMPY JAW, WEN)**

Clyers are swellings or tumours which occur on the jaw, often accompanied by considerable discharge, and for which, when once developed, there is no known cure. If treatment is started in the early stages, development may be retarded or wholly arrested by occasional doses of Iodide of Potassium and the use of Boots Iodized Mineral Salts in the rations.

## **COLD, CHILLS, CATARRH, Etc.**

A cold may mean anything from a simple chill which, if taken in time, will pass off in the course of a day or two, to the more serious general catarrh or bronchial catarrh, with all the well-developed symptoms of inflammation of the nasal and bronchial membranes.

In cases of a simple chill due to exposure, or occurring when cattle are first brought in from open pasture to draughty sheds, treatment consists in giving a warm, stimulating draught, Boots Tonic and Cordial Drench being excellent for this purpose, with a diet of which mashes and warm gruel form a liberal part. In all cold affections the bowels should be kept open without any undue purging, and if necessary Boots Cleansing and Evacuant Drench should be given in mild laxative doses. The above treatment, and keeping the animal warm, is generally sufficient to counteract any slight chill. Where, however, the chill has developed into a general catarrh, further treatment will be necessary, and the fever should be treated by giving Boots Fever Drink night and morning. Where there is any nasal discharge, the nostrils should be frequently sponged with warm water to which has been added a little of Boots Improved Veterinary Disinfectant Fluid. Ordinary nasal catarrh usually yields to simple treatment, but, if neglected, may develop into bronchial pneumonia which is a much more serious complaint. *See Pneumonia, page 33.*

## **COLIC (SPASMS)**

Colic is not a frequent occurrence in cattle, and when present is usually due to undigested food. Where the Colic pains are severe and it is necessary to afford immediate relief, Boots Anodyne (Pain Relieving) Drink (a preparation of chlorodyne and chloral hydrate) should be given. Further treatment will depend upon the cause. If the pain is due to undigested food, Linseed Oil should be given, a full-grown cow having one pint. This could be given at the same time as the Anodyne Drink. Where there is any impaction in the lower bowel, it may be necessary to give a soap and water enema, and further relief can be afforded by the application of cloths wrung out in hot water. After recovery, the animal will benefit by an occasional dose of the Cleansing and Evacuant Drench. The diet should be improved by the addition of Boots Iodized Mineral Salts. The digestive organs may be toned up by giving the Tonic and Cordial Drench.

## **CONSTIPATION (STOPPAGE, FARDEL BOUND OR IMPACTION)**

Constipation is usually due to digestive disturbances, and is frequently the result of feeding upon dry concentrated foods, the trouble usually being in the third or fourth stomach. If indigestion should occur in the paunch or second stomach, it will usually show itself by the evolution of gas (Hoven or Blown, which see, *page 27*). Where, however, there is a "bound" condition, it is obviously necessary to expel the retained food matter. For this, a packet, or in severe cases, 1½ packets of Boots Cleansing and Evacuant Drench should be given mixed with 1 quart of warm gruel, to which may be added ½ to 1 pound of treacle. The diet should be of a light nature, with plenty of green stuff and mashes. Where there is an impaction of the lower bowel, it may be necessary to use an injection of soap and water. When the condition has been relieved, the digestive organs should be toned up by giving Boots Tonic and Cordial Drench. It should be observed that where the food of an animal contains a large proportion of concentrates, digestion is assisted by adding to the rations Boots Iodized Mineral Salts.

## **CONSUMPTION (see *Tuberculosis, page 39*)**

## **COUGHS**

Coughs may be due to the irritation set up by simple chills or bronchitis, or to that caused by the bronchial parasite (Hoose) which are treated under the separate headings.

## **COW POX (VARIOLA)**

Cow Pox is a contagious disease amongst cattle. Pimples form on the teat and develop into pustules, later on breaking and discharging and forming sores. The disease is accompanied by a more or less feverish condition.

Treatment consists in giving mild, laxative medicines, such as Boots Cleansing and Evacuant Drench, a dose being given in gruel every second or third night, and the application of an antiseptic healing ointment (Boots Teat Ointment and Udder Salve) to the affected teats.

**CRUELS** (*see Clyers, page 22*)

**CURDING** (*see Scour, page 35*)

## **DEBILITY (WEAKNESS)**

Debility in animals occurs either as the result of long-standing disease, such as rheumatism, or of internal parasites, when the treatment would be that appropriate to the particular disease, or to a state of malnutrition, when the treatment would consist in a removal to fresh pasture or an alteration in diet (*see Nutrition, page 7*).

**DIARRHŒA** (*see Scour, page 35*)

## **DYSENTERY (BLOODY FLUX)**

Dysentery in cattle is usually simply an extreme case of diarrhœa (probably one that has been neglected) resulting in excessive straining, which accounts for the appearance of blood in the fæces. Care should be taken not to give medicines that may cause further irritation. To ensure the expulsion of all irritant matter the safe treatment is to give a pint of Linseed Oil, with which in the case of severe pain a Boots Anodyne (Pain Relieving) Drink should be given. The animal should be kept quiet and in warm quarters, the diet meanwhile being of a light and easily digested nature. After the bowels have been relieved, the digestive organs can be toned up by giving Boots Tonic and Cordial Drench. (*See Scour, page 35*)

**EPIZOOTIC ABORTION** (*see Abortion, page 19*)

**EPIZOOTIC APHTHA** (*see Foot and Mouth Disease, page 25*)

**EVERSION OF RECTUM** (*see Calving, page 17*)

**EVERSION OF UTERUS** (*see Calving, page 17*)

## **EYE TROUBLES**

The eyes are liable to injuries from foreign matter, bruises, or cold, the necessary treatment being determined by the particular cause. Foreign matter should first of all be removed. General inflammation of the eye is best treated by means of a warm solution of boracic acid, and it should be remembered that when the eye is inflamed, exposure to light always causes great discomfort, and the animal should be kept in a darkened shed or, failing this, some suitable bandage put over the eye. Inflammatory eye conditions are often indicative of general feverishness, and call for the administration of a suitable aperient, followed by a cooling medicine (Boots Fever Drink).

*Boracic Lotion is made by dissolving half an ounce of Boracic Acid in one pint of water.*

Tumours and ulcers on and around the eyes are usually a matter for surgical attention, as their removal can only be effected under the influence of a suitable local anæsthetic.

**FARDEL BOUND** (*see Constipation, page 23*)

**FITS** (*see Stagers, page 37*)

**FLOODING** (*see Calving, page 17*)

### **FLUKE (LIVER ROT)**

Whilst not nearly so prevalent amongst cattle as amongst sheep, there is still sufficient evidence to show that Fluke or Liver Rot does affect cattle, probably to a greater extent than is generally recognised. It is now known that this disease is spread by means of a parasite which infests the liver of the infected animal, where it produces its eggs. These pass through the intestines, and are expelled with the dung on to the soil, where they may lie dormant for months. Under suitable conditions of moisture they develop, producing small free-swimming embryos, a proportion of which find a temporary home in the body of a water snail. The progeny of these parasites ultimately escape from the snail, and find their way back to pasture, where they may be taken up by grazing animals, thus completing the cycle, and infesting further cattle with the disease known as Fluke.

The disease is not so fatal in cattle as in sheep, but nevertheless occasions considerable loss. No satisfactory treatment is known for the affected animals, though pure Carbon Tetrachloride in capsules is considered to give the best results. Carbon Tetrachloride Capsules are recommended as preventive treatment on farms where Fluke is known to be present. As however, authorities are not agreed upon the correct dosage for cattle, and the effect of the drug varies with the animals' diet, stock-owners are advised only to try this treatment for cattle under the supervision of a Veterinary Surgeon. Other preventive treatment consists in draining the land to get rid of the water snails which harbour the parasite, and, where this is impossible, dressing the land with Copper Sulphate in order to destroy the parasite. Particulars of suitable methods of treating the land with Copper Sulphate for this purpose can be obtained from the Ministry of Agriculture's pamphlet, No. 89, on "Fluke or Liver Rot in Sheep."

**FOG SICKNESS** (*see Hoven, page 27*)

**FOOT TROUBLES** (*see Wounds, page 43*)

### **FOOT AND MOUTH DISEASE (EPIZOOTIC APHTHA, MURRAIN)**

As this is a disease coming under the Regulations of the Ministry of Agriculture, and all cases must immediately be notified, it is sufficient to give the symptoms as published by the Ministry of Agriculture in their official leaflets (No. 292 and 390):—

*"Symptoms.*—In cattle, sheep and pigs the disease begins suddenly and spreads with alarming rapidity. It is not a very fatal disease, but stock lose condition when attacked.

The temperature rises. The animal smacks its lips and saliva drips from the mouth. Sometimes lameness is the first symptom noticed. In cattle, vesicles (blebs) are found inside the upper lip and on the tongue. The surface under the vesicle is red. The vesicles also appear between the toes and on the teats of the cow. They seldom appear on the body except in the pig. The milk from affected cows conveys the disease to other animals and to human beings. It should be destroyed, or be thoroughly boiled before being used.

## **FOUL OF THE FEET**

A very painful condition of the foot, accompanied by considerable swelling and suppuration, with consequent lameness. The general condition of the animal suffers accordingly, and there is usually considerable fever. Predisposing causes are tubercular or scrofulous conditions often found in in-bred animals, or the irritation set up by foreign bodies. The animal should be given Boots Fever Drink and laxative doses of the Cleansing and Evacuant Drench. At the same time, the foot must be poulticed until free from all pus. (A few drops of Boots Improved Veterinary Disinfectant Fluid may be added to the poultice). After poulticing, the application of Carbolised Green Oil will have a good effect. It may be necessary for the foot to have the attention of a Veterinary Surgeon.

**FOUNDER** (see **Laminitis**, page 30)

**GARGET** (see **Udder Troubles**, page 40)

**GREEN SKIT** (see **Scour**, page 35)

**GRIPES** (see **Colic**, page 23)

**GRUNTS** (see **Constipation**, page 23)

**HÆMORRHAGE** (see **Calving**, page 15—**Flooding**, page 17—**Wounds**, page 42)

## **HAIR BALLS**

The young animal which develops the habit of licking others is liable to collect hair in the stomach. This may form into balls which cause internal trouble and, in some cases, actual stoppage. The trouble can then only be dealt with by a Veterinary Surgeon, and the first symptom of anything seriously wrong in the animal may be an attack of Hoven or colic pains. The habit of licking another animal is one that may arise from a morbid appetite due to some deficiency in the regular diet, and in its early stages can sometimes be corrected by a suitable adjustment. Care should be taken to see that the diet is well-balanced, Boots Iodized Mineral Salts being a useful addition. The digestive disturbance may be relieved by giving the Tonic and Cordial Drench.

**HARD BAG** (see **Udder Troubles**, page 40)

## **HIDE BOUND (STARING COAT)**

This skin condition is one of the signs of general ill-health, and may be simply indicative of impurity of blood or general lack of condition, or it may be indicative of a more serious disease (consumption, etc.)

In the absence of other symptoms, and where the indications are simply those of general poor condition, treatment consists of a course of corrective medicine, with attention to diet, care being taken to see that the "feed" is of a nutritious nature and given in balanced proportions. For immediate treatment give an aperient (Boots Cleansing and Evacuant Drench) followed by a course of the Tonic and Cordial Drench, which will act as a corrective to the digestive organs and as a general tonic.

*The ideal painkiller, for use instead of Laudanum.*

**BOOTS ANODYNE  
(PAIN RELIEVING) DRINK**

## **HOVEN (BLOWN, FOG SICKNESS OR TYMPANITES)**

As is well known this condition is caused by the formation of gas in the rumen, and is usually a form of indigestion due to the sudden change from one type of food to another, particularly after stall-fed cattle are changed over from dry food to green pasture, especially where the pastures contain a good deal of clover. The condition may also arise from prolonged improper feeding, or sometimes from digestive disturbances caused by chill. Treatment depends upon the severity of the symptoms. In some cases the distension caused by the enclosed gas may be so severe that the animal is in danger of choking, and it will be necessary to use a stomach pump, or to puncture the rumen with a trocar or suitable instrument. This operation, where necessary, should be performed by a Veterinary Surgeon or some experienced person. Simpler cases are treated by giving the necessary corrective medicine. Boots Tonic and Cordial Drench is excellent for this purpose. The Drench should be given in a pint of hot ale and repeated in two hours if necessary. In cases of great pain, a dose of Boots Anodyne (Pain Relieving) Drink can be given at the same time. Where there is constipation, which is frequently the case in 'blown' animals, it is necessary to give a suitable aperient, and for this purpose, Boots Cleansing and Evacuant Drench should be given, with the addition of half to one pint of treacle.

## **HUSK (HOOSE, OR WICH)**

Husk is a disease due to the infestation of the bronchial tubes by a parasitic worm. The larvæ are first taken into the stomach by calves grazing on infected pastures. They find their way to the lungs, where they develop into adult worms which lay eggs in the bronchial passages. These eggs quickly hatch out and set up an irritation in the wind-pipe and throat causing the peculiar cough which has given to the complaint the name of Husk. These throat parasites are swallowed and passed through the stomach and intestines back to the pasture, where they are a source of infection to other animals.

The first indication of the complaint is the soft husky cough which becomes worse when the animals are made to run a few paces. Animals that are allowed to become badly affected may develop Pneumonia—always a serious condition. The complaint usually makes its appearance in the late Summer or early Autumn according to weather conditions, and protective measures should be adopted as soon as the first symptoms are observed. Boots Husk or Hoose Mixture should be given to the whole of the herd, and not simply to the animals showing signs of the disease. Animals should be given a dose, according to age, every morning for three or four days. Calves suffering from Husk should be kept indoors during the night and not be turned out to grass until the dew is off the ground. They should be taken in again before sundown, and their rations should include some concentrated food, such as cake, Boots Iodized Mineral Salts being used as an aid to nutrition. A well-nourished animal shows, of course, an increased resistance to disease.

## **BOOTS HUSK AND WORM MIXTURE**

**FOR LAMBS, SHEEP, CALVES AND CATTLE.**

An effective treatment for Husk or Hoose, and Bronchial Stomach and Intestinal Worms.

Invaluable as a Lamb Drench, protecting the flock against Tape Worm and all other Worms.

**IMPACTION** (*see Constipation, page 23*)

## **INDIGESTION**

The term 'indigestion' will cover all kinds of digestive disturbances, whether caused by chills, unsuitable food, or as a result of other diseases—internal parasites, etc., and the treatment will depend upon the particular cause. Where there is merely a general lack of tone, without any specific disease, a course of Boots Tonic and Cordial Drench will be found useful, being at the same time antacid and stimulating. Where the digestive disturbance is associated with constipation, it is obvious that the necessary treatment consists in the administration of a suitable aperient (Boots Cleansing and Evacuant Drench). For cases of Colic and Hoven, see under appropriate headings.

Where indigestion is due to prolonged feeding on unsuitable or unbalanced foods, the necessary treatment consists in a radical alteration of the diet (*see Nutrition*). An acute form of indigestion may result during the winter from feeding on frozen roots, an excessive quantity of which may cause temporary paralysis of local nerve centres.

**INFECTIOUS DIARRHŒA or SKIT** (*see Scour, pages 35-36*)

# **COD LIVER OIL**

Contains important vitamins which help to balance the nourishing properties of other foods. It should, however, be made from healthy livers, and not be the inferior and worthless product of rotting or unhealthy livers.

Boots Cod Liver Oil for Cattle is guaranteed to be of good quality and full feeding value, and has been tested for its purity and vitamin content.

Packed in

**1 GALLON TINS  
5 GALLON DRUMS  
10 GALLON DRUMS  
40 GALLON BARRELS**

(Containers free).

*Prices on application.*

Obtainable from all branches of  
**BOOTS THE CHEMISTS**

# **Linseed Oil**

Linseed Oil is recommended where a non-irritating purgative for Cattle is required.

Small quantities in the daily food are a valuable aid to nutrition.

The Linseed Oil supplied by Boots The Chemists is guaranteed to be pure and of good quality.

*Prices on application.*

Obtainable from all branches of  
**BOOTS THE CHEMISTS**

## INFLAMMATION.

On account of the many serious complications which may arise, we recommend that all conditions attended by inflammation of any internal organ should have the attention of a Veterinary Surgeon.

### INFLAMMATION OF THE BOWEL (PERITONITIS)

This should be treated by a Veterinary Surgeon. It may be caused by foreign bodies, bacteria, by the eating of Yew or Rhododendron, or by irritants in the food, such as the Croton and Castor Oil Seeds found in some foreign feeding cakes.

The animal will isolate itself from the rest of the herd, and refuse all food. Other signs include loss of cud, arched back, and a general tucked-up appearance, with signs of abdominal pain, accompanied by diarrhoea.

Pending the arrival of the Veterinary Surgeon, give a dose of Boots Anodyne (Pain Relieving) Drink, and as long as necessary repeat every four or five hours. After recovery, give Boots Cordial and Tonic Drench night and morning for a few days.

### INFLAMMATION OF THE BRAIN

This may be caused by a blow, and requires the attention of a Veterinary Surgeon.

### INFLAMMATION OF THE KIDNEYS

Inflammation of the Kidneys should be referred to the Veterinary Surgeon. The first symptoms to observe are an increase in the quantity of urine (which may be blood-stained), stiffness of hind legs and rolling staggering gait, with tenderness on pinching or pressing over the loins.

Where the services of a Veterinary Surgeon are not available, keep the animal in a warm box, well rugged down, and give a dose of Boots Cleansing and Evacuant Drench. Repeat the Drench each night for two or three nights.

### INFLAMMATION OF THE LUNGS (*see Pneumonia, page 33*)

### INFLAMMATION OF THE WOMB (METRITIS)

#### Causes.

The most common cause of inflammation of the womb is an abortion, where the uterus is already infected, or where the afterbirth or cleansing does not come away for several days. Other causes may be a decomposing foetus, infection through a wound caused during calving, dirty surroundings, or undue exposure to cold and wet, a predisposing cause being lowered vitality in the animal.

#### Symptoms.

The cow becomes dull and listless, weak and feverish and may moan and grind her teeth. There is diminished milk supply, diarrhoea, pain and stiffness of limbs, frequent straining and an offensive blood-stained discharge from the vulva.

A Veterinary Surgeon should be consulted, but in his absence treatment should be on the following lines:—Give a Boots Cleansing and Evacuant Drench, mixed with a Tonic and Cordial Drench, every night and morning. Wash out the uterus two or three times a day with Boots Improved Veterinary Disinfectant Fluid (10 drops to the pint) and insert an Acriflavine Pessary into the uterus once a day. Keep the animal warm.

### INFLAMMATION OF UDDER (*see Udder Troubles, page 40*)

### **ITCH (CATTLE ITCH)**

Itch is due to a small parasite and is very contagious. Affected animals should be isolated. Treatment consists in the use of a lotion made by adding 1oz. of Liver of Sulphur to 2 gallons of water, or in the use of an application made by adding 1 tablespoonful of Boots Improved Veterinary Disinfectant Fluid to 1 quart of water (*as under Mange*). Two applications of the lotion will usually be necessary, the second to be given ten days or a fortnight after the first.

### **JAUNDICE (YELLOW)**

Jaundice may be a symptom of some serious disease, but it is usually due to a more or less simple derangement of the liver, associated with a general disturbance of the digestive organs. This is often caused by the forced feeding methods adopted on the modern farm, or to congestion occasioned by colds and chills. It is frequently accompanied by constipation.

Treatment consists in the administration of a liver stimulant and the unloading of the digestive organs by the administration of a suitable purge (Boots Cleansing and Evacuant Drench). In severe cases treatment should start with a suitable dose of Calomel (*see Dose Table*) afterwards toning up the system with a digestive tonic. A dose of Boots Tonic and Cordial Drench every other day for a week will be found excellent. Attention should be given to the diet. The use of Boots Iodized Mineral Salts will help to keep the digestive organs in good condition, and is particularly useful where concentrated food forms a considerable part of the rations.

### **JOHNE'S DISEASE (CHRONIC BACILLARY DIARRHŒA)**

(*see Scour, page 36*)

### **JOINT FELON (*see Rheumatism, page 34*)**

### **JOINT ILL (*see Navel Ill, page 32*)**

### **LAMINITIS (FOUNDER)**

Laminitis is not common in cattle, and if it occurs, usually affects animals that are out-of-condition or are grossly over-fed. Treatment consists in putting the animal on a spare diet, administering a good purge (Boots Cleansing and Evacuant Drench) and, in cases of high temperature, Boots Fever Drink. At the same time the feet should be poulticed with either Linseed or Bran poultices which, to be effective, must be of good size and frequently renewed.

### **LEUCORRŒA (*see Vaginitis, page 40*)**

### **LICE**

Wash with a solution of Boots Improved Veterinary Disinfectant Fluid, one tablespoonful to every quart of water, and repeat three or four times at intervals of seven or eight days. In applying the lotion the extremities (head, tail, neck) should be treated first, and the body last. This will prevent lice taking refuge in the ears, etc.

### **LIVER ROT (*see Fluke, page 25*)**

### **LOCK JAW (*see Tetanus, page 38*)**

### **LUMPY JAW (*see Clyers, page 22*)**

### **MAMMITIS (*see Udder Troubles, page 40*)**

## MANGE

There are several forms of mange in cattle, all of a contagious nature, and due to a small parasite. The female parasite (a small mite) lays its eggs under the skin where they hatch and give rise to great irritation, causing small pimples which exude pus, and later form scabs. It is important to remember that the parasites wander about the body, and are transferred to other healthy animals by the animals rubbing against one another or against gate-posts, buildings, etc. The first signs of mange are usually at the base of the tail and on the neck and shoulders. By persistent treatment it is not difficult to cure an animal suffering from mange. It is necessary to remember that the usual precautions kill the adult parasite, but not the egg. Whatever application is used, it is therefore necessary to repeat the treatment at suitable intervals (so that after killing the adult, time is given for the eggs to hatch out), and to repeat the application without allowing time for the new generation to reach the egg-laying stage. Apply a solution made by mixing 1 tablespoonful of Boots Improved Veterinary Disinfectant Fluid in 1 quart of water. If the whole of the body is to be treated it is advisable to use the solution at only half this strength. Animals with mange must have good, nourishing diet, to which Boots Iodized Mineral Salts have been added.

## MENINGITIS

This demands the attention of a Veterinary Surgeon.

**METRITIS** (*see Inflammation of the Womb, page 29*)

*Boots*

## IODIZED MINERAL SALTS

**For Cattle, Sheep and Pigs.**

An economical and effective preparation for supplying the necessary 'Mineral Supplements' to the rations of farm animals.

**Increases Milk Production.  
Invaluable for fattening  
Cattle.**

**Assists Sheep to produce  
a good Fleece.**

**Promotes Fertility  
and ensures Healthy  
Offspring.**

(See page 4).

*Boots*

IMPROVED

## Veterinary Disinfectant Fluid

**One gallon makes one  
hundred gallons of disinfectant approved by  
the**

**Ministry of Agriculture**

PRICES :

|                    |       |
|--------------------|-------|
| Quart Tin ..       | 2/9   |
| Half Gallon Tin .. | 4/4½  |
| Gallon Tin..       | 7/3   |
| 5 Gallon Drum ..   | 24/7  |
| 40 Gallon Barrel.. | 190/- |

*Containers free and not returnable.  
Special quotations for larger quantities.*

## MILK FEVER

The actual cause of Milk Fever is not yet known. **It generally occurs in heavy milking strains.** The breeds considered to be most susceptible are the Channel Island Cattle.

The symptoms may appear at any time after the cow has calved, usually within three days. The first thing noticeable may be a little swaying motion of the hind-quarters or the failure to give milk. The cow suddenly fails to notice her calf, and walks off with a staggering gait; she falls down and makes repeated efforts to rise; the head may be stretched out resting along the ground, or with the nose pointing towards the flank. There may be difficulty in breathing, and stupor or unconsciousness.

*Treatment.*—A Veterinary Surgeon should be sent for as quickly as possible. If the animal is conscious and able to swallow give a Boots Cleansing and Evacuant Drench and repeat the dose in one hour. Where predisposition exists modern treatment by means of infiltrations of air with a Milk Fever Syringe will often prevent development of Milk Fever.

### *Milk Fever Syringe*

One of the most successful methods in use of late years for the treatment of milk fever is the inflation of the udder with sterilized air. For this purpose a milk fever syringe is required, and some experience is necessary in order to judge the conditions under which the inflation should be carried out, and the extent to which the udder should be inflated. It is advisable for the owner of a large dairy herd to have at hand a milk fever syringe for use when necessary, and to get his veterinary adviser to instruct him in the use of the apparatus and the necessary technique of the operation.

The general directions for the use of the Milk Fever Syringe are :—First well wash and empty the cow's udder. Bed the box with clean straw. Wash and disinfect the hands. Remove the Teat Syphon from the Milk Fever Syringe and boil for ten minutes. Then replace and dip into Boots Carbolic Green Oil before inserting into the teat. Inflate the udder one quarter at a time, tie each teat with a piece of broad tape and let this remain for 20 or 30 minutes and then remove. Tie the tape sufficiently tight to prevent the air escaping. The Teat Syphon should be dipped into the Carbolic Green Oil every time it is used, and before inserting into another teat. Boil when finished.

**MOOR ILL** (*see Red Water, page 33*)

**MURRAIN** (*see Foot and Mouth Disease, page 25*)

### **NAVEL ILL (JOINT ILL)**

This is an infectious disease affecting the new-born animal, the disease germ having found entrance through the navel wound. The first symptoms of infection are that the calves, a few days after birth, move with difficulty and show a disinclination either to walk or feed, after which there are signs of swelling about the joints, in which abscesses frequently form.

Where there has been a case of Joint Ill, it is advisable to use fresh ground or quarters for calving purposes, and everything in and about the chosen place should be frequently and thoroughly disinfected. Any person in attendance should ensure that not only all utensils used, but his own hands and clothes are thoroughly disinfected.

Treatment depends upon the severity of the symptoms. It is often of a surgical nature and should consequently be entrusted to a Veterinary Surgeon. Preventive treatment consists in proper antiseptic precautions. The navel of the newly born calf should be fastened with a ligature or navel string which has been soaked in an efficient antiseptic (5% solution of Carbolic Acid), and calving should be carried out in quarters that are known to be free from infection.

### **NETTLERASH (BLOTCH)**

The irritable condition of the skin characterising this complaint is usually due to an impure condition of the blood, owing to some digestive disturbance. Treatment consists in giving a saline purge (Boots Cleansing and Evacuant Drench) and the allaying of irritation by bathing with a lotion made with loz. of Goulard's Extract in a pint of rain water.

**PARTURITION** (*see Calving, page 15*)

**PERITONITIS** (*see Inflammation of Bowel, page 29*)

**PLACENTA, RETENTION OF :** (*see Calving, page 17*)

**PLEURISY** (*see Inflammation of Lungs, below*)

### **PLEURO-PNEUMONIA**

As official Regulations state that this must be notified to the police, the following is quoted from the official leaflet No. 390 issued by the Ministry of Agriculture.

*“Definition.*—A contagious disease affecting the lungs and pleura, and due to an infective agent.

*Symptoms.*—The first signs of disease often escape notice. The temperature rises. A dry, husky cough is present, especially when the animal first gets on its feet or when made to run. In marked cases the breathing is rapid, and the movement of the flanks is increased. If punched in the ribs, the animal may grunt or show signs of pain. Some of the affected animals may become greatly emaciated, but others, especially those which have passed the acute stages, may appear to be in excellent condition. It does not follow, however, that the latter are cured; they continue to infect others for a very long time.”

### **PNEUMONIA (INFLAMMATION OF THE LUNGS)**

Pneumonia in common with other internal inflammatory diseases should be treated by a Veterinary Surgeon. Exposure to cold and bad weather conditions are the most common causes.

The animal is off its food, and in the case of milch cows there is a sudden decrease in the milk yield. The animal is blowing, there is a moist cough with perhaps a nasal discharge, lifting of the flanks and difficult breathing; the neck is outstretched, the nostrils dilated and the body has a tucked-up appearance.

Where treatment has to be undertaken pending the arrival of a Veterinary Surgeon the animal should be placed in a well-ventilated, airy and roomy loose box, or in a box or shed protected from rain, with one side completely open. Rub the animal's chest and sides with Gratton's Embrocation (White Oils), well rug down and give comfortable clean bedding. Give Boots Fever Drink two or three times a day for three days, and follow with Boots Tonic and Cordial Drench twice daily for a week.

The animal should be given Linseed Gruel, Steamed Oats, Bran Mash, and green food when available.

**QUARTER ILL** (*see Black Leg, page 21*)

### **RED WATER (BLACK WATER OR MOOR ILL)**

Red Water Fever is a disease due to blood infection caused by a very small parasite and, where present, usually makes its appearance during the spring or autumn, though it may occur at any other time of the year. The chief symptom of the complaint is that from which it derives its name—the red colour imparted to the urine, though, as the alternative name implies, the urine may be coloured dark brown. At the same time, there is generally a high

temperature, and constipation. The last symptom is not always present—some affected animals having diarrhœa.

The usual treatment consists in putting the animals on to a laxative diet, containing such items as oats, linseed and roots, a liberal supply of mineral salts being included in the rations, Boots Iodized Mineral Salts being suitable for this purpose. Regular doses of a saline aperient such as Boots Cleansing and Evacuant Drench are necessary. Further treatment of the affected animal depends upon the symptoms, which vary. It is best to have the advice of a Veterinary Surgeon.

Preventive measures are of the utmost importance. Red Water is a disease which is carried from one animal to another by blood-sucking ticks. These ticks become infested with the disease germ from the affected animal, pass the disease by way of the eggs to the larvæ which other cattle take up whilst grazing. Red Water can only occur where there are ticks to act as carriers of the disease. Hence the surest way of preventing a recurrence of the complaint is to avoid for a sufficient period—about fourteen months—the use of an infected pasture, in order to allow the infesting ticks to die off. This is not always practicable, and preventive treatment is frequently made by inoculation of animals that are likely to be pastured on land which is known to be infected.

### **RHEUMATISM (CHINE FELON OR JOINT FELON)**

In animals rheumatic pains may be due to exposure to cold and damp, in which case the appropriate treatment is removal to warm, dry quarters and the inclusion of warm gruels in the diet. The bowels should be kept open with Boots Cleansing and Evacuant Drench, and any feverish symptoms should be treated with Boots Fever Drink. The application of a stimulating embrocation (White Oils) will relieve pain. In ordinary cases, a few days of treatment is generally sufficient to effect a cure.

Rheumatism is more likely to occur in animals in a debilitated condition, and correct feeding is of primary importance.

**Chronic Rheumatism** may be the result of impurities in the blood owing to errors in diet, and treatment consists in the proper change in the rations, which should include a liberal dose of Boots Iodized Mineral Salts. The value of Iodine in rheumatic conditions needs no emphasising.

### **RICKETS (SOFT BONES)**

Rickets is a condition of malnutrition due to faulty assimilation of the essential mineral salts and vitamins. It is possible for the necessary calcium and other essentials to be present in the food and for the deficiency to arise from the inability of the animal to assimilate them. For further information, see Nutrition, page 7.

### **RINGWORM (WHITE SCAB)**

Ringworm, if properly treated, is not so difficult to cure as is sometimes imagined. Treatment, however, demands that before the dressing is applied, the patches should be thoroughly cleaned so as to remove any crust. This is best done by using a solution of soft soap to which a little washing soda has been added, after which the following will be found an effective dressing :—

|                                             |          |
|---------------------------------------------|----------|
| Red Iodide of Mercury                       | 1 part   |
| Soft Paraffin Ointment                      | 20 parts |
| To be applied daily for three or four days. |          |

Boots Red Blister, one part mixed with one and a half parts of Vaseline or lard, will make a similar preparation.

**This Ointment will be found a very effective one, but should not be used over**

very extensive areas. Where a large area is to be treated, the following is recommended :—

|               |       |          |
|---------------|-------|----------|
| Chrysarobin   | .. .. | 1 part   |
| Sulphur       | .. .. | 2 parts  |
| Lard, to make | .. .. | 20 parts |

To be well rubbed in every second or third day.

It should be remembered that Ringworm is very infectious amongst animals, and may even be transmitted to human beings. Consequently, it is necessary that the greatest precaution should be taken. All bedding should be burnt, sheds and buildings which have been occupied by infected cattle should be thoroughly disinfected with Boots Improved Veterinary Disinfectant Fluid, (one teaspoonful to a quart), and the attendant should use the same disinfectant for his hands and any clothing that is likely to be contaminated.

### **SCOUR (DIARRHŒA, BACILLARY WHITE DIARRHŒA, SKIT, CURDING OR JOHNE'S DISEASE)**

Diarrhœa, or Scour, is just a symptom; any looseness of the bowel from any cause whatever being designated by this name. It may be of quite a simple nature, set up by cold or chill, or due to disordered digestive organs. On the other hand, it may be one of the symptoms attending a serious internal disease or due to some condition set up by a parasite. Treatment obviously depends upon the real cause.

#### **SIMPLE DIARRHŒA**

By Simple Diarrhœa we mean that due to undigested food or to chills, and not caused by any of the more serious diseases. It is treated by removing the animal to warm quarters and giving a suitable purge to get rid of any irritant matter in the form of undigested food. The best aperient for this purpose is Linseed Oil. A full-grown cow should be given from one to one-and-a-half pints. At the same time the diet should be adjusted so as to consist largely of crushed oats, meal, bran, etc., with thin fluid gruel to drink. This treatment will frequently be sufficient, and when the offending irritant matter has been expelled the diarrhœa will shortly cease naturally. If, however, the diarrhœa should continue, Boots Scour Mixture should be given three times a day as long as necessary.

If, in spite of treatment, the diarrhœa persists for several days, and especially if it be accompanied by a rise of temperature, one should always suspect the existence of a specific disease, in which case it is advisable to consult a Veterinary Surgeon. Prolonged diarrhœa is always weakening.

#### **SCOUR, WHITE**

White Scour is a very infectious disease causing annually the death of a great number of calves, and is more easily prevented than cured. It usually appears amongst calves a few days old and the chief symptom is the whitish discharge which gives its name to the complaint. The disease develops quickly, and the affected animal rapidly wastes away, death ensuing in from three to ten days. No sure cure has been found for the disease when once it is properly established, but if treated with a reliable antiseptic and germicidal mixture when the symptoms first show themselves, a cure can in many cases be effected. For this purpose Boots Scour Mixture should be given three times a day. Where White Scour has occurred, the most stringent preventive measures should be adopted. The disease is so highly infectious that it has been thought that calves have been born with it. There is, however, no proof of this, though it has been proved that the newly born calf can acquire the disease immediately after birth from almost anything with which it may come into contact. Precautions therefore demand stringent measures in order that no disease germs can exist in and about the buildings, on the mother animal, or on the person or clothing of any of the attendants. It is important that fresh calving quarters should be found,

and no buildings likely to have been infected should be used for this purpose. The walls and floors of all cow-sheds or premises used must be thoroughly disinfected at regular intervals with a solution of Copper Sulphate (2-lbs. to 3 gallons of water). The straw provided for the calving animal should be clean and free from suspicion. After calving, all refuse and litter should be well soaked with a solution of Boots Improved Veterinary Disinfectant Fluid and destroyed. As the navel of the newly-born animal is a possible source of infection, the navel cord should be tied with a cord that has been soaked in a solution of Carbolic Acid or other disinfectant, and the surrounding area painted with a little ordinary Tincture of Iodine. Where White Scour has appeared, it is safe to assume that other calves born on the same farm will be subject to infection. Besides using the ordinary disinfectant precautions, it is wise to give each calf at birth a tablespoonful of Boots Scour Mixture, repeating the dose at the end of twenty-four hours, and again on the following day.

### JOHNE'S DISEASE (CHRONIC BACILLARY DIARRHŒA)

This is a chronic infectious diarrhœa, common amongst cattle, and often responsible for the production of those animals known as "wasters." The disease is due to a germ which causes chronic inflammation of the bowels, and although the complaint develops slowly it resists all efforts to cure it, and is almost invariably fatal. The first symptoms of the disease are a general want of condition, and looseness of the bowels. The infected animal may harbour the complaint for some considerable time before there is any active development. If recognised in the early stages, good results may attend the feeding of the animal with a rich diet fortified with a liberal supply of Boots Iodized Mineral Salts. But it must be remembered that the disease is a highly infectious one, and the presence of an infected animal on a farm is a source of danger to others unless the animal is well isolated, and the utmost precautions taken to prevent the disease from spreading. All dung, litter, etc., from infected animals should be covered up, thoroughly disinfected, and either burnt or buried with lime, every place used by an infected animal must be thoroughly disinfected, and any ground that is known to be infected should be dressed with lime and not used as pasture for about six months.

## *Boots* Scour Mixture

A safe and prompt remedy for White Scour in Calves, and for Diarrhœa, Scour or Skit in Horses, Cattle, Sheep, Pigs, Foals, Calves and Lambs.

This mixture is an absorbent and an intestinal antiseptic medicine, and is a most reliable preparation for Diarrhœa, from whatever cause it may arise.

**WHITE SCOUR IN CALVES.**—Boots Scour Mixture is AN EXCELLENT PREVENTIVE against this infectious disease. A dose should be given to the newly born Calf, and repeated in 24 hours, and again on the next day.

Where White Scour or Skit has occurred Boots Scour Mixture is the best curative remedy. As soon as a Calf is affected it should be given two tablespoonfuls of the Mixture two to four times a day, according to the severity of the attack. Very young Calves should receive smaller doses in proportion to their size. Treatment should be continued until the Diarrhœa ceases. Affected animals should be kept away from healthy Calves to prevent the infection spreading.

**SCOUR OR SKIT IN LAMBS.**—White Skit in Lambs is characterised by a thin watery discharge. A dose of Castor Oil (one to two teaspoonfuls) should be given first and then Boots Scour Mixture according to directions, until the Diarrhœa ceases.

**BLACK SKIT OR SCOUR IN YOUNG LAMBS.**—This is an infectious complaint often found in lambs two or three days old, and frequently proves fatal. As soon as the signs are noticed the Lamb should be removed from the infected ground. Give a teaspoonful of Castor Oil, and then two teaspoonfuls of Boots Scour Mixture every 4 hours, whilst the Diarrhœa persists. As A PREVENTIVE, Boots Scour Mixture should be given when the Lamb is 12 hours old, and repeated daily for five days.

**Price 3/6 per bottle.**

*Obtainable from all branches of Boots The Chemists.*

## **SKIN AFFECTIONS**

The skin of an animal is usually a good indication of its general health. Where the skin is out of condition, it is generally safe to assume that the animal is in need of a course of conditioning medicine. Treatment will, of course, depend upon the nature of the symptoms. Where there is impurity of the blood, a course of aperient medicine is indicated, and a dose of Boots Cleansing and Evacuant Drench once a week for three or four weeks will generally be found beneficial. There is frequently digestive disturbance, with lack of assimilation of some of the essentials for nutrition. In this case Boots Iodized Mineral Salts, added to the daily rations, will often effect an improvement. Where the trouble is due to want of tone rather than impurities of the blood Boots Tonic and Cordial Drench will usually be found to produce a marked improvement in the general condition.

**SLIPPING CALF** (*see Abortion, page 19*)

**SOFT BONES** (*see Rickets, page 34*)

**SORE TEATS** (*see Teat and Udder Troubles, pages 38, 40*)

**SPASMS** (*see Colic, page 23*)

## **STAGGERS**

For Staggers due to brain trouble *see Apoplexy*.

A staggering gait and loss of limb control indicated by the name of this complaint, are only symptoms, and may be due to one of several causes. If due to local injury causing pressure towards the brain, treatment is a matter for the Veterinary Surgeon.

## **GRASS STAGGERS (STOMACH STAGGERS)**

**Grass Staggers** is due to a digestive disturbance attended by distension of the abdomen and constipation. It generally appears very suddenly, and may pass away quickly, or terminate fatally equally quickly. Treatment consists in the immediate administration of a brisk purgative, and the withholding of all food for the time being. Any further treatment would probably be in the nature of blood letting, and would have to be undertaken by the Veterinary Surgeon.

**STARING COAT** (*see Hide Bound, page 26*)

## **STERILITY (BARRENNESS)**

Sterility may be due to a variety of causes. For Slipping Calf or Abortion, *see page 19*. For Malnutrition, leading to sterility, *see page 7*. Sterility may also be due to some organic derangement for which diagnosis by a Veterinary Surgeon will be necessary.

**STOPPAGE** (*see Constipation, page 23*)

**STRIKE** (*see Black Leg, page 21*)

## **TEATS (Chapped, Sore, etc.)**

Chapped Teats are a frequent cause of trouble, particularly on the dairy farm. They may be caused by cold and chills, especially on a cow whose teats are in a delicate condition, just following upon calving, or they may be due to irritation caused by milking, etc. The application of Boots Teat Ointment and Udder Salve will quickly allay the pain and irritation, and this treatment alone will be sufficient for all simple cases of cracked and sore teats. It is important to remember that the hands of the milker have a good deal to do with keeping the teats in good condition, and if the hands are kept in a soft,

supple condition, they are less likely to cause irritation to the animal. Teat and udder troubles are usually accompanied by feverish conditions, and the animal should be given laxative doses of Boots Cleansing and Evacuant Drench twice weekly. Diet should be of a light nature.

### TEATS (OBSTRUCTIONS IN)

Obstructions in Teats are occasionally met with, and vary in size, shape and position. The obstruction may be partial or complete, according to the nature of the growth.

The character and position can usually be determined by palpating the teat between the thumb and fingers, and by the use of the teat syphon. When the obstruction is only partial the milk is drawn off with difficulty in a thin stream, and the exercise of much patience is necessary. The milking of the quarter becomes more difficult on each occasion, until complete obstruction eventually takes place. The affected quarter becomes swollen and distended, hot and painful, and secretion is suspended. It is obvious that the existence of a definite obstruction caused by a growth requires surgical treatment, and should be referred to a Veterinary Surgeon on account of the danger of causing injury to the teat canal and setting up acute Mastitis accompanied by serious constitutional disturbance, with grave risk of fatal results.

**Antiseptic Teat Bougies** provide a convenient form of medication within the teat. The Bougies are rather less in thickness than an ordinary milk syphon, and are medicated with Acriflavine (Boots). The insertion of a Teat Bougie after an operation will prevent the closing of the milk duct.

—(see also Udder, page 40).

### TETANUS (LOCKJAW)

Tetanus is the name given to the disease commonly known as lockjaw, and is caused by the *Bacillus Tetani*, which gains entrance to the body by way of a wound.

**Symptoms.**—The symptoms take the form of a peculiar stiffness of the limbs, which are usually drawn widely apart. The animal is unable to turn round, or does so with great difficulty, and feeding is slow. The animal may become excitable, with head out-stretched, nostrils dilated, and the third eyelid protruding over the eyeball. Swallowing is difficult and there is increased salivation and dribbling.

**Treatment.**—Place the animal in a loose box, excluding all light, and keep very quiet. Place half a bucket of sloppy mash in a manger to attract the animal's attention, and send for a Veterinary Surgeon.

### THRUSH (see Blain, page 21)

*Boots*

## ANTISEPTIC TEAT BOUGIES

These Bougies, rather less in thickness than an ordinary milk syphon, are medicated with Acriflavine (Boots). They are invaluable where a reliable antiseptic is required for medication within the teat.

The insertion of a Teat Bougie after an operation will prevent the closing of the milk duct.

Price 2/6 per Box of 12.

*Boots*

## Teat Ointment and Udder Salve.

A soothing and healing preparation for all cases of Udder Inflammation, Congestion, and Sore, Chapped, or Cracked Teats. It allays pain, prevents infection, and is ideal for keeping the udder soft.

This antiseptic ointment is absolutely harmless to milk, and may be used regularly as a preventive of Udder Diseases.

It tends to keep the hands of the milker in good condition, and minimises the risk of infection.

Price 1/6 per Tin.

## TUBERCULOSIS (CONSUMPTION)

Tuberculosis is one of the diseases of animals coming under the Regulations of the Ministry of Agriculture, and we advise every farmer to make himself familiar with the Official Leaflet No. 277 on Tuberculosis in Farm Stock. Tuberculosis is a highly contagious disease, and in the building up of a healthy herd it is important that no animal in an advanced stage should be kept, on account of the danger to others. The infected animal can pass on the germ by coughing it up, or by means of tubercular abscess or infected milk, or in the ordinary way through the faeces. It is possible for other animals to become infected through either breathing in or swallowing the germ, or infection may take place through the skin.

Tuberculosis is difficult to recognise in the early stages, but the following are the symptoms as described in the Ministry of Agriculture's Leaflet (No. 390) :—

“Sometimes not characteristic, the disease being often of a mild chronic nature. In advanced cases there is usually emaciation, when the lungs are affected there may be a chronic cough with disturbance of the respiratory function. In cows, lesions in connection with the udder are sometimes present. The udder, usually in one of the posterior quarters, becomes the seat of a hard swelling of slow but steadily progressive growth—the swelling is usually almost painless. The milk from the affected quarter at first appears normal, then becomes thin and watery, and later becomes flaked. Microscopic examination of milk from the diseased quarter shows the presence of tubercle bacilli. During life the existence of the disease may be detected by means of the tuberculin test.”

Sometimes the only method of detecting the disease is by the tuberculin test. It is unprofitable to keep an animal in an advanced stage of tuberculosis. The only rational way of dealing with this disease is to take the most stringent preventive measures. These are :—

- (1) The regular use of a reliable disinfectant in all cow-sheds, houses and other places where the germ is likely to be found. Tubercular germs can be killed by using a suitable disinfectant.
- (2) The elimination of all “wasters” from the herd.
- (3) Not crowding too many cattle into confined buildings. Tuberculosis is more rife amongst cattle kept indoors than amongst those kept out of doors.
- (4) Attention to the proper balancing of diet so as to avoid all rickety conditions which are often predisposing causes of tuberculosis. See Nutrition, page 7. Note the value of Cod Liver Oil and Iodized Mineral Salts.

The following notice appears in the official leaflet (No. 277) :—

“Under the Tuberculosis Order of 1925 the following forms of disease are notifiable :—

- (1) Any cow which is, or appears to be, suffering from tuberculosis of the udder, indurated udder or other chronic disease of the udder, or
- (2) Any bovine animal which is, or appears to be, suffering from tubercular emaciation ; or
- (3) Any bovine animal which is suffering from a chronic cough and showing definite clinical signs of tuberculosis.

Copies of the Tuberculosis Order can be obtained free of charge on application to the Ministry.”

**TYMPANITES** (see Hoven, page 27)

## UDDER TROUBLES

Being an extremely delicate organ, the udder is very susceptible to inflammations and particularly to the disease known as **Hard Bag, Garget, Mastitis or Mammitis**. The inflammation may vary from a very mild local condition to the most severe swelling and inflammation, accompanied by general feverishness and decay of the infected part.

Severe cases of udder inflammation should always be dealt with by a Veterinary Surgeon on account of the many complications that may arise. It is important, however, for every dairy farmer to remember that nearly all cases of Garget or Inflammation of the Udder are caused by septic germs which have gained admission from the outside. Contamination may come from other cows, from the hands of a milker, or from the cow lying on infected ground or bedding, particularly just after being milked. Every precaution should be taken to protect dairy animals from infection. The acute form of mastitis generally occurs in young heifers, particularly during the first month after calving, and though the specific cause is generally some germ, predisposing conditions are chills, exposure and irritation caused by foul bedding, irregular or unskillful milking, failure to dry teats after milking, etc.

The first symptoms are usually sudden shivering, with high temperature and local inflammation which may be confined to one teat or which may spread to the whole of the udder.

Other forms of mastitis vary a great deal in the acuteness of the local inflammation and the amount of disturbance to the general health. There is a form of chronic mastitis which in the early stages does not seriously affect the general health, and starts with a slight local inflammation, but which slowly develops and, despite all efforts at treatment, assumes a chronic condition. Preventive treatment consists in absolute cleanliness during milking, and attention to all wounds and sores, which should be dressed with a healing ointment (Boots Teat Ointment and Udder Salve).

In cases where a milk syphon or other implement is used, the instrument should be sterilised and used under proper antiseptic conditions. Any animal affected with Udder Inflammation should be kept apart from the others to prevent contagion. Early treatment for affected animals consists in the administration of a good purgative—Boots Cleansing and Evacuant Drench—after which a course of Boots Fever Drink should be given, and the bag and teat bathed in hot water, dried, and gently massaged with Boots Teat and Udder Salve. Some severe cases will require poulticing. At the same time, the animal should be fed chiefly on mash, with a little good hay and green stuff.

(See also **Teat**, page 37, 38).

**UTERUS, DISTENSION OF :** (see under **Calving**, page 15)

**UTERUS, EVERSION OF :** (see under **Calving**, page 17)

## VAGINITIS (WHITES or LEUCORRŒA)

This condition is an infectious one and the animal should be isolated. Treatment consists of an antiseptic injection, the best being a solution of Acriflavine (Boots), 1 in 4000, to be continued as long as there is any discharge. At the same time, the animal should be given a course of aperient medicine, half doses of Boots Cleansing and Evacuant Drench being given twice a week.

**VARIOLA** (see **Cow Pox**, page 24)

## WARBLES.

The warble fly and its mite are the cause of much loss to the farmer, not only on account of the damage done to the hide, but also because of the lowering of milk production occasioned in dairy cows by loss of condition or the prevention of animals from thriving.

The warble fly lays its eggs from May to September, usually on the lower part of the hind leg of the animal. Something may be done to protect the animals by pasturing them where they can find cool shelter under shady trees, and also by smearing the leg with a tarry ointment or oil to keep off the fly, though there is no application that will definitely prevent the fly laying its egg on the animal.

The eggs hatch out, and the maggots find an entrance through the skin into the animal's system, reaching the back of the throat. Here they develop, later on taking up a position just under the skin of the back, and making the well-recognised breathing holes which cause the damage to the skin. When discovered, the maggot should be squeezed out and killed. It should not be killed whilst under the skin of the animal as this may cause blood-poisoning. The Ministry of Agriculture publish a special leaflet, No. 21, on the warble fly in which they recommend for destroying the maggot the use of a wash made from tobacco and fresh lime. The following are the directions for making and using the dressing :—

“In a gallon of water is dissolved one pound of fresh lime. To this four pounds of the tobacco powder are added and the mixture is then left standing for 24 hours. The liquid is then strained through coarse muslin or sacking, and applied to the backs of the infected cattle with a cloth or brush. To obtain the maximum amount of liquid the cloth should be wrung out, and, if necessary, additional water may be introduced for a second wring out without weakening the resulting wash. The quantity mentioned is enough for the dressing of a dozen beasts, and it is important that the application be carried out so that the liquid penetrates through the breathing hole into the cavity of the warble and comes into contact with the maggot. This dressing should be used at intervals of two or three weeks from the beginning of February until the end of June. It is only by perseverance and general effort that the numbers of the insects can be reduced, and several years' work will be needed to approach extermination of the fly.”

*Further particulars can be obtained by consulting the leaflet referred to.*

### **WARTS (ANGLEBERRIES)**

These very common and unsightly growths are frequently found around the eyes, on the lower part of the abdomen, or on the teats and udders of cattle. Those found round the eyes of young cattle occasionally drop off without treatment. Warts vary considerably in their nature, some being simple hard round growths enclosed in a small sac, and lying almost loose under the skin. Others grow out and are joined to the body by a kind of stalk, whilst yet others are of a large spreading nature, broad at the base; these last being the most difficult to deal with. The first two can often be removed by simple means. It is often possible to remove the hard loose variety by snipping off with a pair of scissors, after which the part should be painted with iodine solution. The stalked variety can frequently be removed by the application of a ligature gradually tightened every few days. The broad, spreading variety is usually best treated by the application of some caustic dressing. A solution of one part of salicylic acid in eight parts of collodion often proves efficacious for this purpose. Warts on teats are the most troublesome because of the constant irritation set up by milking. These often require surgical treatment, and it is generally advisable to secure the services of a Veterinary Surgeon. The time chosen for the removal of these warts should generally be the period when the cow is dry, so that any small wound left will have time to heal without being subject to undue irritation.

### **WASTERS**

This is the name given to animals suffering from one of the wasting diseases such as Johne's Disease, Rickets or Tuberculosis, which are dealt with separately.

**WEAKNESS** (*see Debility, page 24*)

**WEN** (*see Clyers, page 22*)

**WHITES** (*see Vaginitis, page 40*)

**WHITE SCOUR** (*see Scour, page 35*)

**WHITE SCAB** (*see Ringworm, page 34*)

**WICH** (*see Husk, page 27*)

### **WOODEN TONGUE (ACTINOMYCOSIS)**

Wooden Tongue is the form in which Actinomyces in cattle usually shows itself. The symptoms are excessive flow of saliva, ulcers on the tongue and about the mouth. Frequently the glands are swollen and tumours may appear on the cheek, the tongue at the same time assuming the hard, inflexible appearance which gives the name to the disease.

Medicinal treatment consists in giving large doses of Potassium Iodide, but as pronounced conditions of Wooden Tongue are generally associated with local conditions that require the services of an operator (the removing of tumours, etc.), it is generally advisable to consult a Veterinary Surgeon. Wooden Tongue is due to the action of a parasitic fungus which grows on grasses, etc., and is more or less limited to certain districts. In districts where cattle are liable to Wooden Tongue, their general rations should contain a supply of Potassium Iodide, Boots Iodized Mineral Salts being suitable for this purpose.

### **WOUNDS, BRUISES, SPRAINS, Etc.**

There is no hard and fast rule for the treatment of the various kinds of wounds and bruises to which animals are subject. Treatment depends upon the nature of the case, but a few general principles should be observed. The most important thing to remember is that an open wound is a source of danger. All kinds of disease germs, tetanus, etc., may find entrance through an open wound, so that a wise precaution is to use a reliable antiseptic or disinfectant. Peroxide of Hydrogen is an excellent antiseptic, which, although causing a smarting sensation, is scarcely irritant. Gauze soaked in a solution of 1 part of Peroxide of Hydrogen with 3 parts of boiled water is an excellent dressing for wounds, and the agent prevents adhesion.

Clear cuts should be treated by first being disinfected, then the opposite edges of the wound brought together and fastening in that position, either by means of suitable strapping, or by sutures after which a final dressing of Carbolyzed Green Oil should be applied.

Lacerated, torn, or ragged wounds must first of all be thoroughly cleansed, and disinfected by means of a solution of Improved Veterinary Disinfectant Fluid (1 teaspoonful to 1 quart of water). Bleeding may be allayed by the application of a solution of Perchloride of Iron, or Friar's Balsam may be sufficient. Where there is pronounced bleeding, it may be necessary to apply pressure, or in the case of severed blood vessels, a ligature. One should remember that the natural process of healing from a bleeding wound is by means of blood clots, and these should not be removed unnecessarily.

Bruises are best treated by bathing with hot water to which a little of the Improved Disinfectant Fluid has been added (one teaspoonful to 1 quart of water) after which the White Oils (Gratton's Embrocation) should be applied twice daily, without rubbing as long as necessary.

Where a wound becomes ulcerated or generally unhealthy and refuses to heal, the necessary treatment is by means of hot fomentations, or washing out with the Peroxide of Hydrogen solution, and covered—if necessary plugged—with a gauze dressing or an astringent lotion applied. This can be made by using a Veterinary Astringent Lotion Tablet containing 20 grains each of Alum, Sulphate of Zinc and Sulphate of Copper, with Thymol, one Tablet being dissolved in 3 to 4 ounces of water. If this treatment should not induce healing, a more caustic application will be necessary, and a solution

of Chloride of Zinc, 1 gr. to the ounce applied daily, or the wound be painted with a solution of Nitrate of Silver. Abscesses require surgical attention. They should be opened, all pus drained, the abscess syringed out, and kept open by means of a little antiseptic tape or gauze plug soaked in a Peroxide of Hydrogen solution until all pus has been removed, when healing may be facilitated by the application of a little resin and carbolic ointment.

**Broken Knees, etc.,** frequently require cleansing by means of a linseed poultice, after which the application of a solution made by mixing one part of Gratton's Embrocation (White Oils) with five parts of water will be sufficient to induce healing.

**Sprains and Swellings** are generally best treated by means of hot fomentations, followed by a gentle application of Gratton's Embrocation. If necessary, they should be bandaged, but the bandage must not be applied until the embrocation has been rubbed dry, unless it is desired to raise a blister.

It should not be overlooked that animals with ulcerated wounds or bruised tissue are usually in a feverish condition, and it is generally advisable to administer a mild dose of a saline aperient (Boots Cleansing and Evacuant Drench), followed by a suitable course of tonic and cordial medicine.

**Foot Troubles.** Wounds between the clays due to a picked-up nail, pieces of thorns, and old pieces of fencing, are another source of trouble, and if left untreated may set up septic poisoning and result in loss to the owner. In the treatment of all wounds in the feet, the animal is best treated when lying on the floor and securely held by an assistant. The foot can then be well fomented with hot water containing Boots Improved Veterinary Disinfectant Fluid (one teaspoonful to the pint). The foreign body, if any, can then be removed with greater certainty. After well disinfecting the wound and removing all dirt, dress with Boots Carbolic Green Oil and bandage, placing a wad of tow (previously soaked in the Green Oil) between the clays. Repeat the treatment once a day.

Cattle suffering from wounds should in most cases be allowed to run out at pasture, as this is generally preferable to a none too clean stable or yard.

**YELLOW S** (see Jaundice, page 30)

# Veterinary Preparations

*Guaranteed and sold by Boots The Chemists.*

## For HORSES

### COLIC DRINK.

1/6 per bottle.

### CONDITION & DIURETIC BALLS

1/6 per packet of three.

### CONDITION POWDER

1lb. tin 1/6      4lb. tin 4/6

### COUGH PASTE

2/6 per jar.

### IODIZED BLOOD SALT

7/6 per 4lb. tin.

### RED BLISTER

1/6 per pot.

### STIMULATING CORDIAL DRINK

1/6 per bottle.

### WORM POWDERS

1/6 per packet of seven.

## For SHEEP

### GROVE'S FOOT ROT PASTE

1/- per jar.

### LAMBING DRINK for Ewes and STIMULATING CORDIAL DRINK for Sheep

1/- per bottle (2 doses).

### LAMBING OILS

2/6 per pint tin.

### LIQUID SHEEP DIP

|               |       |
|---------------|-------|
| 1/2 gallon .. | 3/3   |
| 1 gallon ..   | 5/6   |
| 5 gallons ..  | 21/-  |
| 40 gallons .. | 135/- |

# Doses of Cattle Medicines in Common Use.

|                                 |                                                     |                                          |
|---------------------------------|-----------------------------------------------------|------------------------------------------|
| Aniseed .. .. .                 | Cordial .. .. .                                     | 1 to 2 oz.                               |
|                                 | A useful flavouring for saline aperients for cattle |                                          |
| Aspirin .. .. .                 | Rheumatism .. .. .                                  | 2 to 3 drams                             |
| Calomel .. .. .                 | Purgative (single doses) ..                         | 1 to 2 drams                             |
|                                 | Liver Stimulant (repeated doses)                    | 10 to 20 grs.                            |
| Castor Oil .. .. .              | Purgative .. .. .                                   | 1 pint or more                           |
| Chloral Hydrate .. .. .         | Sedative .. .. .                                    | $\frac{1}{2}$ to 1 oz.                   |
|                                 | (well diluted)                                      |                                          |
| Chalk (Prepared) .. .. .        | Absorbent, in Diarrhœa ..                           | 2 to 4 oz.                               |
| Cod Liver Oil .. .. .           | Nutrient .. .. .                                    | 2 to 4 oz.                               |
| Epsom Salts .. .. .             | Purgative .. .. .                                   | $\frac{3}{4}$ lb. to 1 lb.               |
| Fœnugreek .. .. .               | As Condiment .. .. .                                | $\frac{1}{2}$ oz. or more                |
| Gentian .. .. .                 | Stomachic, Bitter .. .. .                           | $\frac{1}{2}$ to 1 oz.                   |
| Ginger .. .. .                  | Stomachic, Cordial .. .. .                          | $\frac{1}{2}$ to 1 oz.                   |
| Iron Sulphate .. .. .           | Tonic .. .. .                                       | 2 to 4 drams                             |
| Linseed Oil.. .. .              | Purgative .. .. .                                   | 1 pint or more                           |
|                                 | As a Nutrient.. .. .                                | $\frac{1}{2}$ wineglassful in daily food |
| Potassium Bromide .. .. .       | Sedative .. .. .                                    | $\frac{1}{2}$ to 1 oz.                   |
| Potassium Iodide .. .. .        | Given for Wooden Tongue                             | 1 to 3 drams                             |
| Soda Bicarbonate .. .. .        | Antacid .. .. .                                     | $\frac{1}{2}$ to 1 oz.                   |
| Soda Sulphate (Glauber's Salts) | Saline Purge .. .. .                                | 1 lb. or more                            |
| Sulphur .. .. .                 | As Aperient .. .. .                                 | 3 to 4 oz.                               |
|                                 | As Corrective .. .. .                               | $\frac{1}{4}$ to $\frac{1}{2}$ oz.       |

NOTE: 2 Tablespoonfuls = 1 oz. 1 Wineglassful = 2 ozs. 1 pint = 20 fluid ozs.

The above doses are for cows of average breeds, aged two years and over. Doses for smaller breeds would be proportionate to the weight. For younger animals, doses can be calculated from the following table:—

|                              |                               |
|------------------------------|-------------------------------|
| 1 year old .. .. .           | Half the above doses          |
| 6 months to 1 year .. .. .   | Quarter the above doses       |
| 3 months to 6 months .. .. . | One-Eighth the above doses    |
| 1 month to 3 months .. .. .  | One-Sixteenth the above doses |

The normal temperature of a cow is approximately 101·5° F. This varies according to climatic and other conditions, and in the dairy cow in full milk may rise to 102·4.

## VETERINARY BOOKLETS

Published by BOOTS PURE DRUG Co. Ltd.

### POULTRY HINTS

The Maintenance of Health and the Treatment of Common Ailments in domestic Fowls, Pigeons, Turkeys, Geese, Pheasants, etc.

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### THE HORSE

and First Aid for simple maladies.

### CARE OF THE DOG

and the Treatment of Simple Canine Ailments—with a note concerning Cats.

Hints on the care of

### THE SHEEP

and its ailments.

### HINTS ON CATTLE

with Special Reference to Milk Production, and some simple methods of Milk-Testing for the Farmer.

PRICE TWOPENCE EACH.

Obtainable from all branches of Boots the Chemists, or direct from Veterinary and Agricultural Department, Boots Pure Drug Co. Ltd., Station Street, Nottingham.

# VETERINARY INSTRUMENTS AND APPLIANCES.

|                                                 | Price |  |  |             |                                              | Price |  |  |                                           |
|-------------------------------------------------|-------|--|--|-------------|----------------------------------------------|-------|--|--|-------------------------------------------|
| Abscess Lancet .. .. .                          |       |  |  | 4/-         | Milk Fever Outfit, Cycle Pump Pattern        |       |  |  | 19/6                                      |
| Balling Gun, Wood .. .. .                       |       |  |  | 9/-         | „ „ „ Rubber (in tin box)                    |       |  |  | 15/-                                      |
| Balling Iron .. .. .                            |       |  |  | 35/-        | Milking Tube, 1 ring .. .. .                 |       |  |  | 1/-                                       |
| Bandages, White open Wove—                      |       |  |  |             | „ „ 2 „ .. .. .                              |       |  |  | 1/3                                       |
| “Regaid,” Best Quality—6 yards in length        |       |  |  |             | „ „ Self Retaining .. .. .                   |       |  |  | 2/-                                       |
| Width Per doz. Per gross Per 5 gross            |       |  |  |             | „ „ Trumpet .. .. .                          |       |  |  | 1/6                                       |
| 1in. 1/3 11/9 11/6 per gross                    |       |  |  |             | „ „ Bulbous End .. .. .                      |       |  |  | 1/3                                       |
| 1½in. 1/9 17/7½ 17/3 „                          |       |  |  |             | Mouth Gag, Dog .. .. .                       |       |  |  | 8/6                                       |
| 2in. 2/3 23/6 23/- „                            |       |  |  |             | Nail Clippers, Dog .. .. .                   |       |  |  | 10/6                                      |
| 2½in. 2/9 29/4½ 28/9 „                          |       |  |  |             | „ Scissors „ .. .. .                         |       |  |  | 5/6                                       |
| 3in. 3/6 35/3 34/6 „                            |       |  |  |             | 5in. Probe with eye, Nickel Plated ..        |       |  |  | 9d.                                       |
| 4in. 4/6 47/- 46/- „                            |       |  |  |             | 6in. „ „ „ .. .. .                           |       |  |  | 1/3                                       |
| H.4 Quality—6 yards in length                   |       |  |  |             | 7in. „ „ „ .. .. .                           |       |  |  | 1/6                                       |
| Width Per doz. Per gross                        |       |  |  |             | 8in. „ „ „ .. .. .                           |       |  |  | 1/9                                       |
| 1in. 10d. 8/-                                   |       |  |  |             | 9in. „ „ „ .. .. .                           |       |  |  | 2/-                                       |
| 1½in. 1/3 12/-                                  |       |  |  |             | 10in. „ „ „ .. .. .                          |       |  |  | 2/6                                       |
| 2in. 1/8 16/-                                   |       |  |  |             | 12in. „ „ „ .. .. .                          |       |  |  | 2/9                                       |
| 2½in. 2/1 20/-                                  |       |  |  |             | Rubber Gloves, Household, sizes 6-9, per pr. |       |  |  | 1/6                                       |
| 3in. 2/6 24/-                                   |       |  |  |             | Extra Quality .. .. .                        |       |  |  | per pr. 2/9                               |
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| Bull Ring, 2½in. .. .. .                        |       |  |  | 2/6         | Silk, Umbilical, Bottle 3 reels, No. 5       |       |  |  | 4/9                                       |
| „ „ 2¾in. .. .. .                               |       |  |  | 2/9         | „ Braided Hank, No. 5 .. .. .                |       |  |  | 1/7½                                      |
| „ „ 3in. .. .. .                                |       |  |  | 3/-         | „ Twisted, Hank, No. 5 .. .. .               |       |  |  | 1/6                                       |
| Capsule Forceps .. .. .                         |       |  |  | 8/6         | Sponges, Domestic, Carriage and Motor,       |       |  |  | from 6d. each                             |
| Castrating Clamp, Gregory's .. .. .             |       |  |  | 5/6         | Spray, Disinfectant, “Multiple” ..           |       |  |  | 2/-                                       |
| „ Forceps, 8½in. .. .. .                        |       |  |  | 25/-        | Sturdy Set .. .. .                           |       |  |  | 27/6                                      |
| „ „ 12in. .. .. .                               |       |  |  | 50/-        | Syringe, Brass, Clyster, ½ pint ..           |       |  |  | 24/-                                      |
| „ Triple Blade, 11in. .. .. .                   |       |  |  | 55/-        | „ „ „ 1 „ .. .. .                            |       |  |  | 30/-                                      |
| „ Clamp, Large, Burdizzos ..                    |       |  |  | 75/-        | „ „ „ 2 „ .. .. .                            |       |  |  | 38/-                                      |
| „ „ Small „ .. .. .                             |       |  |  | 50/-        | „ 4-oz. Brass Quittor with Tonybus           |       |  |  | Pipe, 15/-                                |
| „ Knife, S.B. Folding .. .. .                   |       |  |  | 9/6         | Syringes, Glass .. .. .                      |       |  |  | ½-oz. 7½d., 1-oz. 11d.                    |
| „ Curved Blade, S.B. Folding                    |       |  |  | 9/6         | (also larger sizes)                          |       |  |  |                                           |
| Catgut, No. 4, 3 reels .. .. .                  |       |  |  | 5/-         | Syringe, Hypodermic, in leather case         |       |  |  | 9/6                                       |
| Catheter, Horse, Nickel Plated ..               |       |  |  | 15/-        | Serum Syringe, 240 min., Metal and Glass     |       |  |  | with straight and curved needles in metal |
| „ Mare „ „ .. .. .                              |       |  |  | 11/6        | case .. .. .                                 |       |  |  | 25/-                                      |
| Cotton Wool, Fourth Quality                     |       |  |  | 1/3 per lb. | Syringe, Hypodermic, “Record,” 10cc.         |       |  |  | 14/6                                      |
| 7lbs. at 1/1½ per lb.                           |       |  |  |             | Tape, Hank, ¼in., Iodof. Enc. ..             |       |  |  | 1/6                                       |
| Cowhorn .. .. .                                 |       |  |  | 2/9         | „ Hank, Umbilical in envelope ..             |       |  |  | 10½d.                                     |
| Cradle for Horses Neck .. .. .                  |       |  |  | 12/6        | Teats, Calves, Transparent, to slip over     |       |  |  | 3d.                                       |
| Drenching Funnel .. .. .                        |       |  |  | 15/-        | „ Lamb (White), to plug in ..                |       |  |  | 4½d.                                      |
| Drenching Tin .. .. .                           |       |  |  | 6/-         | „ „ (transparent), to slip over              |       |  |  | 3d.                                       |
| Drenching Horn, Celluloid .. .. .               |       |  |  | 7/6         | Thermometers—                                |       |  |  |                                           |
| Drenching Bit .. .. .                           |       |  |  | 25/-        | Dairy, 1/6, 1/7½, 2/-, 2/6                   |       |  |  |                                           |
| Dressing, Sterilised—                           |       |  |  |             | Fruit Bottling, 3/6                          |       |  |  |                                           |
| Small for injured fingers, 1 gr. at 9/- per gr. |       |  |  |             | Garden, 1/10½, 5/-, 7/3                      |       |  |  |                                           |
| Medium for injured hands and feet, at 12/-      |       |  |  |             | Incubator, 2/9                               |       |  |  |                                           |
| per gross                                       |       |  |  |             | Veterinary Clinical, 4/6                     |       |  |  |                                           |
| Large at 25/- per gross                         |       |  |  |             | Indoor, 10d.                                 |       |  |  |                                           |
| Extra Large at 40/- per gross                   |       |  |  |             | Thoroughpin Truss .. .. .                    |       |  |  | 35/-                                      |
| First Aid Case, Home .. .. .                    |       |  |  | 5/6         | Tow, Hospital, B.P.C. 10d. per lb.           |       |  |  | 7lbs. at 9d. per lb.                      |
| Gamgee Tissue (Pink Label) 1lb. packet          |       |  |  | 2/3 per lb. | Vaccination Needle .. .. .                   |       |  |  | 4/-                                       |
| Gauze, 6 yard packets (paper wrapped)—          |       |  |  |             | Veterinary Knife with Catch ..               |       |  |  | 12/6                                      |
| Plain, 1 doz. packets at 12/- per dozen         |       |  |  |             | Wadding—White, 6d., Grey, 4d. per sheet      |       |  |  |                                           |
| Double Cyanide, 1 doz. packets at               |       |  |  |             | Wash Leathers .. .. .                        |       |  |  | from 6½d. to 5/- each                     |
| 14/6 per dozen                                  |       |  |  |             |                                              |       |  |  |                                           |
| Lactometer .. .. .                              |       |  |  | 2/3         |                                              |       |  |  |                                           |
| Lint, Boric “Regaid”—                           |       |  |  |             |                                              |       |  |  |                                           |
| 2/8 per lb., 7lbs. at 2/3 per lb.               |       |  |  |             |                                              |       |  |  |                                           |
| Lint, White, Plain Absorbent, “Regaid”—         |       |  |  |             |                                              |       |  |  |                                           |
| 3/3 per lb., 7lbs. at 2/9 per lb.               |       |  |  |             |                                              |       |  |  |                                           |

*Prices are subject to market fluctuations.*

# INDEX.

|                                     |           |                                  |    |
|-------------------------------------|-----------|----------------------------------|----|
| Abortion .. .. .                    | 19        | Inflammation of Udder .. .. .    | 40 |
| Abortion, Epizootic .. .. .         | 19        | Inflammation of Womb .. .. .     | 29 |
| Abscess .. .. .                     | 43        | Itch .. .. .                     | 30 |
| Actinomycosis .. .. .               | 20        | Jaundice .. .. .                 | 30 |
| Angleberries .. .. .                | 20        | Johne's Disease .. .. .          | 36 |
| Anthrax .. .. .                     | 20        | Joint Felon .. .. .              | 34 |
| Aphtha .. .. .                      | 21        | Joint Ill .. .. .                | 32 |
| Apoplexy .. .. .                    | 21        | Kidneys, Inflammation of .. .. . | 29 |
| Barrenness .. .. .                  | 21        | Laminitis .. .. .                | 30 |
| Black Leg .. .. .                   | 21        | Leucorrhœa .. .. .               | 40 |
| Black Quarter .. .. .               | 21        | Lice .. .. .                     | 30 |
| Black Water .. .. .                 | 33        | Liver Fluke .. .. .              | 25 |
| Blain .. .. .                       | 21        | Lock Jaw .. .. .                 | 38 |
| Blast .. .. .                       | 21        | Lumpy Jaw .. .. .                | 22 |
| Bloody Flux .. .. .                 | 24        | Lungs, Inflammation of .. .. .   | 33 |
| Blotch .. .. .                      | 21        | Mammitis .. .. .                 | 40 |
| Blown .. .. .                       | 27        | Mange .. .. .                    | 31 |
| Bowels, Inflammation of .. .. .     | 29        | Meningitis .. .. .               | 31 |
| Bowels, Impaction of .. .. .        | 21        | Metritis .. .. .                 | 29 |
| Brain, Inflammation of .. .. .      | 29        | Milk .. .. .                     | 9  |
| Broken Knee .. .. .                 | 43        | Milk Abnormalities .. .. .       | 13 |
| Bronchial Pneumonia .. .. .         | 22        | Milk Fever .. .. .               | 32 |
| Bronchitis .. .. .                  | 22        | Milk Fever Syringe .. .. .       | 32 |
| Bruises .. .. .                     | 42        | Milk Sugar .. .. .               | 9  |
| Calving .. .. .                     | 15        | Moor Ill .. .. .                 | 33 |
| Capped Knee .. .. .                 | 22        | Murrain .. .. .                  | 25 |
| Catarrh .. .. .                     | 23        | Navel Ill .. .. .                | 32 |
| Cattle Itch .. .. .                 | 22        | Nettlerash .. .. .               | 33 |
| Cattle Plague .. .. .               | 22        | Parturition .. .. .              | 15 |
| Chapped Teats .. .. .               | 22        | Peritonitis .. .. .              | 29 |
| Chills .. .. .                      | 23        | Placenta, Retention of .. .. .   | 17 |
| Chine Felon .. .. .                 | 22        | Pleurisy .. .. .                 | 33 |
| Clyers .. .. .                      | 22        | Pleuro-pneumonia .. .. .         | 33 |
| Colic .. .. .                       | 23        | Pneumonia .. .. .                | 33 |
| Constipation .. .. .                | 23        | Quarter Ill .. .. .              | 21 |
| Consumption .. .. .                 | 23        | Red Water .. .. .                | 33 |
| Contagious Abortion .. .. .         | 19        | Rheumatism .. .. .               | 34 |
| Coughs .. .. .                      | 23        | Rickets .. .. .                  | 34 |
| Cow Pox .. .. .                     | 24        | Ringworm .. .. .                 | 34 |
| Cruels .. .. .                      | 22        | Scour .. .. .                    | 35 |
| Curding .. .. .                     | 24        | Scour, White .. .. .             | 35 |
| Debility .. .. .                    | 24        | Skin Affections .. .. .          | 37 |
| Diarrhœa, Chronic Bacillary .. .. . | 36        | Skit .. .. .                     | 35 |
| Diarrhœa, White Bacillary .. .. .   | 35        | Slipping Calf .. .. .            | 19 |
| Diarrhœa, Simple .. .. .            | 35        | Soft Bones .. .. .               | 34 |
| Doses of Cattle Medicines .. .. .   | 44        | Sore Teats .. .. .               | 37 |
| Dysentery .. .. .                   | 24        | Spasms .. .. .                   | 23 |
| Epizootic Abortion .. .. .          | 19        | Sprains .. .. .                  | 43 |
| Epizootic Aphtha .. .. .            | 25        | Staggers .. .. .                 | 37 |
| Eversion of Rectum .. .. .          | 17        | Staring Coat .. .. .             | 26 |
| Eversion of Uterus .. .. .          | 17        | Sterility .. .. .                | 37 |
| Eye Troubles .. .. .                | 24        | Stomach Staggers .. .. .         | 37 |
| Fardel Bound .. .. .                | 23        | Stoppage .. .. .                 | 23 |
| Fits .. .. .                        | 37        | Strike .. .. .                   | 21 |
| Flooding .. .. .                    | 17        | Swellings .. .. .                | 43 |
| Fluke .. .. .                       | 25        | Teats, Chapped .. .. .           | 37 |
| Fog Sickness .. .. .                | 27        | Teats, Obstruction in .. .. .    | 38 |
| Foot and Mouth Disease .. .. .      | 25        | Tetanus .. .. .                  | 38 |
| Foot Troubles .. .. .               | 43        | Thrush .. .. .                   | 21 |
| Foul of the Feet .. .. .            | 26        | Tuberculosis .. .. .             | 39 |
| Founder .. .. .                     | 30        | Tympanites .. .. .               | 27 |
| Garget .. .. .                      | 40        | Udder, Inflammation of .. .. .   | 40 |
| Grass Staggers .. .. .              | 37        | Udder Troubles .. .. .           | 40 |
| Green Skit .. .. .                  | 35        | Uterus, Distension of .. .. .    | 15 |
| Gripes .. .. .                      | 23        | Uterus, Eversion of .. .. .      | 17 |
| Grunts .. .. .                      | 26        | Vaginitis .. .. .                | 40 |
| Hæmorrhage, Calving .. .. .         | 17        | Variola .. .. .                  | 24 |
| Hæmorrhage, Flooding .. .. .        | 17        | Warbles .. .. .                  | 40 |
| Hæmorrhage, Wounds .. .. .          | 42        | Warts .. .. .                    | 41 |
| Hair Balls .. .. .                  | 26        | Wasters .. .. .                  | 41 |
| Hide Bound .. .. .                  | 26        | Wen .. .. .                      | 22 |
| Hoven .. .. .                       | 27        | White Scab .. .. .               | 34 |
| Husk and Hoose .. .. .              | 27        | White Scour .. .. .              | 35 |
| Impaction .. .. .                   | 23        | Whites .. .. .                   | 40 |
| Indigestion .. .. .                 | 28        | Womb, Inflammation of .. .. .    | 29 |
| Infectious Diarrhœa .. .. .         | 35 and 36 | Wooden Tongue .. .. .            | 42 |
| Inflammation of Bowel .. .. .       | 29        | Wounds .. .. .                   | 42 |
| Inflammation of Brain .. .. .       | 29        | Wich .. .. .                     | 27 |
| Inflammation of Kidneys .. .. .     | 29        | Yellows .. .. .                  | 30 |
| Inflammation of Lungs .. .. .       | 33        |                                  |    |

# DOG REMEDIES, Etc.

*guaranteed and sold by*

*Boots*

|                                |                                                |
|--------------------------------|------------------------------------------------|
| APERIENT & LIVER TABLETS       | Tin of 25 tablets, price 1/-                   |
| CONDITION TABLETS ..           | Tin of 25 tablets, price 1/-                   |
| COUGH TABLETS .. ..            | Tin of 25 tablets, price 1/-                   |
| DIARRHŒA POWDERS               | Packet of 12 powders, price 1/-                |
| DISTEMPER TABLETS ..           | Tin of 25 tablets, price 1/-                   |
| EAR CANKER DROPS .. ..         | Bottle, price 1/-                              |
| FEVER CURE .. .. .             | Bottle, price 1/3                              |
| FULLERTON DOG SOAP .. ..       | Tablet, price 4½d.                             |
| IODIZED TONIC SYRUP .. ..      | Bottle, price 1/-                              |
| KENNEL FLUID 6 oz. bottle,     | price 1/-, pint tin, price 2/3                 |
| LIQUID SHAMPOO .. ..           | Bottles, price 9d. and 1/3                     |
| MANGE AND SKIN LOTION .. ..    | Bottle, price 1/3                              |
| NERVE TONIC TABLETS ..         | Tin of 25 tablets, price 1/-                   |
| SKIN OINTMENT .. .. .          | Tin, price 1/3                                 |
| VETERINARY INSECT POWDER       |                                                |
|                                | Sprinkler-topped containers, price 6d. and 1/3 |
| WORM CAPSULES (Puppies)        | Tin of 12 Capsules, price 1/-                  |
|                                | Tin of 30 Capsules, price 2/-                  |
| WORM CAPSULES (for Dogs)       | Tin of 9 Capsules, price 1/-                   |
|                                | Tin of 20 Capsules, price 2/-                  |
| WORM CAPSULES (for Large Dogs) |                                                |
|                                | Tin of 5 Capsules, price 1/-                   |
|                                | Tin of 12 Capsules, price 2/-                  |

SPECIAL QUOTATIONS FOR LARGER QUANTITIES.

## For POULTRY

|                             |                            |
|-----------------------------|----------------------------|
| IODIZED POULTRY SPICE .. .. | 7½d. per packet            |
| IODIZED TONIC SYRUP .. ..   | 1/- per bottle             |
| GAPES PILLS, 9d. per bottle | ROUP PILLS, 9d. per bottle |
| VETERINARY INSECT POWDER .. | per tin, 6d. and 1/3       |

*These preparations are sold by all branches of Boots The Chemists.*

# CATTLE MEDICINES, Etc.

GUARANTEED AND SOLD BY

*Boots*

|                                                      |                                  |           |
|------------------------------------------------------|----------------------------------|-----------|
| ACRIFLAVINE PESSARIES (1 in 2000)                    | per dozen                        | 6/-       |
| ANODYNE (Pain Relieving) DRINK ..                    | per bottle                       | 1/6       |
| CARBOLISED GREEN OIL .. ..                           | per bottle                       | 1/3       |
| CAPSULES OF CARBON TETRA-<br>CHLORIDE (1 c.c.) .. .. | 25 for                           | 2/-       |
|                                                      | 50 for 3/-, 100 for 5/-, 250 for | 11/-      |
| Ditto (1 dram), per dozen 2/- ; (4 dram)             | per dozen                        | 6/-       |
| CLEANSING & EVACUANT DRENCH                          | per carton                       | 1/3       |
| FEVER DRINK .. ..                                    | per bottle                       | 1/3       |
| GRATTON'S EMBROCATION (White Oils)                   | per bot.                         | 2/- & 3/3 |
| HUSK AND WORM MIXTURE .. ..                          | per pint tin                     | 2/6       |
| IODIZED MINERAL SALTS 28 lb. bag                     | 6/- ; 1 cwt. bag                 | 20/-      |
| LAMBING OILS .. ..                                   | per pint tin                     | 2/6       |
| SCOUR MIXTURE .. ..                                  | per bottle                       | 3/6       |
| TEAT OINTMENT & UDDER SALVE                          | per tin                          | 1/6       |
| TONIC & CORDIAL DRENCH .. ..                         | per carton                       | 1/-       |

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IMPROVED VETERINARY DISINFECTANT FLUID  
 Quart 2/9 ; Half-Gallon 4/4½ ; Gallon 7/3 ; 5 Gallon Drum, 24/7  
*Special Quotations for Larger Quantities.*

THIS booklet does not attempt to deal with serious complaints which require the attention of a Veterinary Surgeon, but it is felt that a guide to the treatment of simple ailments and advice as to precautionary methods to prevent more serious diseases will be appreciated. It will frequently be noticed that we advise consultation with the Veterinary Surgeon.